SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

[X] ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2002

OR

[ ] TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from to

Commission file number 1-12830

BioTime, Inc.

(Exact name of registrant as specified in its charter)

California **(State or other jurisdiction of incorporation or organization)**	**94-3127919** **(I.R.S. Employer Identification No.)**
935 Pardee Street, Berkeley, California **(Address of principal executive offices)**	**94710** **(Zip Code)**

Registrant's telephone number, including area code (510) 845-9535

Securities registered pursuant to Section 12(b) of the Act:

Common Shares, no par value
(Title of Class)

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes [X] No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. [ ]

Indicate by check mark whether the registrant is an accelerated filer (as defined in Rule 12b-2 of the Act). Yes No [X]

The approximate aggregate market value of voting stock held by nonaffiliates of the registrant was $ 17,580,015 as of the last business day of the registrant's most recently completed second fiscal quarter. Shares held by each executive officer and director and by each person who beneficially owns more than 5% of the outstanding Common Shares have been excluded in that such persons may under certain circumstances be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

13,565,101
(Number of Common Shares outstanding as of March 20, 2003)
Documents Incorporated by Reference
None

PART I

Statements made in this Form 10-K that are not historical facts may constitute forward-looking statements that are subject to risks and uncertainties that could cause actual results to differ materially from those discussed. Words such as "expects," "may," "will," "anticipates,"intends," "plans," "believes," "seeks," "estimates," and similar expressions identify forward-looking statements. See "Risk Factors" and Note 1 to Financial Statements.

Item 1. Description of Business

Overview

BioTime, Inc. (the "Company" or "BioTime") is a development stage company engaged in the research and development of synthetic solutions that can be used as blood plasma volume expanders, blood replacement solutions during hypothermic (low temperature) surgery, and organ preservation solutions. Plasma volume expanders are used to treat blood loss in surgical or trauma patients until blood loss becomes so severe that a transfusion of packed red blood cells or other blood products is required. The Company is also developing a specially formulated hypothermic blood substitute solution that would have a similar function and would be used for the replacement of very large volumes of a patient's blood during cardiac surgery, neurosurgery and other surgeries that involve lowering the patient's body temperature to hypothermic levels.

The Company's first product, Hextend®, is a physiologically balanced blood plasma volume expander, for the treatment of hypovolemia. Hypovolemia is a condition caused by low blood volume, often from blood loss during surgery or from injury. Hextend maintains circulatory system fluid volume and blood pressure and keeps vital organs perfused during surgery. Hextend, approved for use in major surgery, is the only blood plasma volume expander that contains a medically approved form of starch called hetastarch, lactate, multiple electrolytes and glucose. Hextend is designed to compete with and to replace products that have been used to maintain fluid volume and blood pressure during surgery. These competing products include albumin and other colloid solutions, and crystalloid solutions. Albumin is a solution that contains a protein processed from human blood. Other colloid solutions contain proteins or a starch that keep the fluid in the patient's circulatory system in order to maintain blood pressure. Crystalloid solutions generally contain salts and may also contain other electrolytes, and are not as effective as Hextend, albumin and other colloids on a per unit basis in maintaining a patient's circulatory system fluid volume and pressure. Hextend is also completely sterile to avoid risk of infection. Health insurance reimbursements and HMO coverage now include the cost of Hextend used in surgical procedures.

Hextend is being sold in the United States by Abbott Laboratories under an exclusive license from the Company. Abbott also has the right to sell Hextend in Canada, where an application for marketing was approved on July 8, 2002. Hextend product launch in Canada is expected during the second quarter of this year. On March 27, 2003, the Company and CJ Corp. ("CJ") entered into an Exclusive License Agreement (the "CJ Agreement") under which the Company granted to CJ an exclusive license to manufacture and sell Hextend and PentaLyte in the Republic of Korea. Abbott and CJ also have rights to obtain licenses to manufacture and sell other BioTime products. See "Licensing" for more information about the license granted to Abbott Laboratories and CJ.

As part of the marketing program, a number of studies have been conducted that show the advantages of receiving Hextend and other BioTime products during surgery. For example, the results of a clinical trial by NJ Wilkes et al performed in England and entitled “The effects of balanced versus saline-based hetastarch and crystalloid solutions on acid-base and electrolyte status and gastric mucosal perfusion in elderly surgical patients” was published in the October 2001 edition of *Anesthesia and Analgesia*, and underscores a number of Hextend benefits including maintenance of normal acid-base balance, blood calcium and chloride levels and perfusion of portions of the gastro-intestinal tract. As future studies such as these are completed, the results will be presented at medical conferences and articles will be written for publication in medical journals. The Company is also aware of independent studies using Hextend that are being conducted which may be published in medical journals or reported at medical conferences. The outcome of future medical studies and timing of the publication or presentation of the results could have an effect on Hextend sales.

Hextend has been approved for use and added to hospital formularies, and has obtained or is seeking formulary committee approval at many additional hospitals. Inclusion on hospital formularies is important because it enables physicians to obtain Hextend without the need to special order it. Obtaining formulary approval generally takes several months and often requires diligent efforts.

The Company is also developing two other blood volume replacement products, PentaLyte,® and HetaCool,TM that, like Hextend,® have been formulated to maintain the patient’s tissue and organ function by sustaining the patient’s fluid volume and physiological balance.

Various colloid and crystalloid products are being marketed by other companies for use in maintaining patient fluid volume in surgery and trauma care, but those solutions do not contain the unique comprehensive combination of electrolytes, glucose, lactate and hydroxyethyl starch found in Hextend, PentaLyte, and HetaCool. The use of competing solutions can contribute to patient morbidity, including conditions such as hypovolemia, fluid accumulation in body tissues, impaired blood clotting, and a disturbance of the delicate chemical balances on which most of the body’s chemical reactions depend. One of these competing products is 6% hetastarch in saline solution. On June 14, 2002, the Blood Products Advisory Committee of the United States Food and Drug Administration voted 8-0 with 2 abstentions to recommend to the FDA that the labeling of 6% hetastarch in saline should be changed by adding a warning regarding the risk of bleeding during cardiac surgery. No such recommendation was made for Hextend since it is a different product.

Another competing product is albumin produced from human plasma. Albumin is more expensive than Hextend and is subject to supply shortages. An FDA warning has cautioned physicians about the risk of administering albumin to seriously ill patients.

Based upon the results of its clinical studies and laboratory research, the Company has determined that in many emergency care and surgical applications it is not necessary for a plasma volume expander to include special oxygen carrying molecules to replace red blood cells. Therefore, the Company is developing formulations that do not use costly and potentially toxic oxygen carrying molecules such as synthetic hemoglobin and perfluorocarbons. However, recent laboratory findings

by Company scientists suggest that Hextend can allow hemoglobin-based oxygen carrier solutions to be used more effectively.

In order to commence clinical trials for regulatory approval of new products, such as PentaLyte and HetaCool, or new therapeutic uses of Hextend, it will be necessary for the Company to prepare and file with the FDA an Investigational New Drug Application ("IND") or an amendment to expand the present IND for additional Hextend studies. Filings with foreign regulatory agencies will be required to commence clinical trials overseas.

BioTime has completed a Phase I clinical trial of PentaLyte involving a small number of subjects and has submitted its findings to the FDA. BioTime plans to test PentaLyte for the treatment of hypovolemia in surgery. PentaLyte contains a lower molecular weight hydroxyethyl starch than Hextend, and is more quickly metabolized. PentaLyte is designed for use when short lasting volume expansion is desirable. BioTime's ability to commence and complete its clinical studies of PentaLyte depends on its cash resources and the costs involved, which are not presently determinable.

BioTime is also continuing to develop solutions for low temperature surgery and trauma care. A number of physicians have reported using Hextend to treat hypovolemia under mild hypothermic conditions during cardiac surgery. Additional cardiac surgeries have been performed at deeper hypothermic temperatures. In one case, Hextend was used to treat hypovolemia in a cancer patient operated on under deep hypothermic conditions in which the heart was arrested. Once a sufficient amount of data from successful low temperature surgery has been compiled, the Company plans to seek permission to conduct trials using Hextend as a complete replacement for blood under near-freezing conditions. BioTime currently plans to market Hextend for complete blood volume replacement at very low temperatures under the trade mark "HetaCool" after FDA approval is obtained.

The cost of preparing regulatory filings and conducting clinical trials is not presently determinable, but could be substantial. It will be necessary for the Company to obtain additional funds in order to complete any clinical trials that it may conduct for its new products or for new uses of Hextend.

In addition to developing clinical trial programs, the Company plans to continue to provide funding for its laboratory testing programs at selected universities, medical schools and hospitals for the purpose of developing additional uses of Hextend, PentaLyte, HetaCool, and other new products, but the amount of research that will be conducted at those institutions will depend upon the Company's financial status.

The Company was incorporated under the laws of the State of California on November 30, 1990. The Company's principal office is located at 935 Pardee Street, Berkeley, California 94710. Its telephone number at such office is (510) 845-9535.

Hextend® and PentaLyte® are registered trademarks, and HetaCool™ is a trademark, of BioTime, Inc.

Products for Surgery, Plasma Volume Replacement and Emergency Care

The Market for Plasma Volume Expanders

The Company is developing Hextend, PentaLyte, HetaCool and other synthetic plasma expander solutions to treat acute blood loss that occurs as a result of trauma injuries and during many kinds of surgery. These products are synthetic, can be sterilized, and can be manufactured in large volumes. Hextend, PentaLyte, and HetaCool contain constituents that may maintain physiological balance when used to replace lost blood volume.

Hextend is also currently being used to treat hypovolemia subsequent to trauma or sepsis by emergency room physicians. After appropriate clinical testing and regulatory approval, it may be used by paramedics to treat acute blood loss in trauma victims being transported to the hospital. Hextend has also been purchased by the United States armed forces and may be used in cases of battlefield trauma.

Approximately 10,000,000 surgeries take place in the United States each year, and blood transfusions are required in approximately 3,000,000 of those cases. Transfusions are also required to treat patients suffering severe blood loss due to traumatic injury. Many more surgical and trauma cases do not require blood transfusions but do involve significant bleeding that can place the patient at risk of suffering from shock caused by the loss of fluid volume (hypovolemia) and physiological balance. Whole blood and packed red cells generally cannot be administered to a patient until the patient's blood has been typed and sufficient units of compatible blood or red cells can be located. Periodic shortages of supply of donated human blood are not uncommon, and rare blood types are often difficult to locate. The use of human blood products also poses the risk of exposing the patient to blood borne diseases such as AIDS and hepatitis.

Due to the risks and cost of using human blood products, even when a sufficient supply of compatible blood is available, physicians treating patients suffering blood loss are generally not permitted to transfuse red blood cells until the patient's level of red blood cells has fallen to a level known as the "transfusion trigger." During the course of surgery, while blood volume is being lost, the patient is infused with plasma volume expanders to maintain adequate blood circulation. During the surgical procedure, red blood cells are not generally replaced until the patient has lost approximately 45% to 50% of their red blood cells, thus reaching the transfusion trigger at which point the transfusion of red blood cells may be required. After the transfusion of red blood cells, the patient may continue to experience blood volume loss, which will be replaced with plasma volume expanders. Even in those patients who do not require a transfusion, physicians routinely administer plasma volume expanders to maintain sufficient fluid volume to permit the available red blood cells to circulate throughout the body and to maintain the patient's physiological balance.

Several units of fluid replacement products are often administered during surgery. The number of units will vary depending upon the amount of blood loss and the kind of plasma volume expander administered. Crystalloid products must be used in larger volumes than colloid products such as Hextend.

The Market for Products for Hypothermic Surgery

In 1997, more than 500,000 coronary bypass and other open heart surgeries were performed in the United States annually. Approximately 18,000 aneurysm surgeries and 4,000 arterio-venous malformation surgeries were performed in the United States during 1989. Current estimates indicate that more than one million people over age 55 have pathological changes associated with aortic arch aneurysms. Open heart procedures often require the use of cardio-pulmonary bypass equipment to do the work of the heart and lungs during the surgery. During open heart surgery and surgical procedures for the treatment of certain cardiovascular conditions such as large aneurysms, cardiovascular abnormalities and damaged blood vessels in the brain, surgeons must temporarily interrupt the flow of blood through the body. Interruption of blood flow can be maintained only for short periods of time at normal body temperatures because many critical organs, particularly the brain, are quickly damaged by the resultant loss of oxygen. As a result, certain surgical procedures are performed at low temperatures because lower body temperature helps to minimize the chance of damage to the patient's organs by reducing the patient's metabolic rate, thereby decreasing the patient's needs during surgery for oxygen and nutrients which normally flow through the blood.

Current technology limits the degree to which surgeons can lower a patient's temperature and the amount of time the patient can be maintained at a low body temperature because blood, even when diluted, cannot be circulated through the body at near-freezing temperatures. As a result, surgeons face severe time constraints in performing surgical procedures requiring blood flow interruption, and those time limitations prevent surgeons from correcting certain cardiovascular abnormalities.

Hypothermic techniques may also have an important use in treating trauma patients that have experienced severe blood loss. BioTime is sponsoring a new project at the State University of New York Health Sciences Center in Brooklyn to study hypothermia and complete blood volume replacement with HetaCool in an animal model of civilian trauma.

Hextend, PentaLyte and HetaCool

The Company's first three blood volume replacement products, Hextend, PentaLyte, and HetaCool have been formulated to maintain the patient's tissue and organ function by sustaining the patient's fluid volume and physiological balance. Hextend, PentaLyte, and HetaCool, are composed of a hydroxyethyl starch, electrolytes, sugar and lactate in an aqueous base. Hextend and HetaCool use a high molecular weight hydroxyethyl starch (hetastarch) whereas PentaLyte uses a lower, molecular weight hydroxyethyl starch (pentastarch). The hetastarch is retained in the blood longer than the pentastarch, which may make Hextend and HetaCool the products of choice when a larger volume of plasma expander or blood replacement solution for low temperature surgery is needed or where the patient's ability to restore his own blood proteins after surgery is compromised. PentaLyte, with pentastarch, would be eliminated from the blood faster than Hextend and HetaCool and might be used when less plasma expander is needed or where the patient is more capable of quickly restoring lost blood proteins. The Company has also tested HexaLyte, a new plasma volume expander that contains a low molecular weight hydroxyethyl starch and that would be eliminated

from the body more rapidly than Hextend and HetaCool, but not as rapidly as PentaLyte. BioTime believes that by testing and bringing these products to the market, it can increase its market share by providing the medical community with solutions to match patients' needs.

Certain clinical test results indicate that Hextend is effective at maintaining blood calcium levels when used to replace lost blood volume. Calcium can be a significant factor in regulating blood clotting and cardiac function. Clinical studies have also shown that Hextend maintains acid-base better than saline-based surgical fluids. The Company expects that PentaLyte will also be able to maintain blood calcium levels and acid-base balance based upon laboratory studies and the fact that the formulation of PentaLyte is similar to that of Hextend.

On June 14, 2002, the Blood Products Advisory Committee of the United States Food and Drug Administration voted 8-0 with 2 abstentions to recommend to the FDA that the labeling of 6% hetastarch in saline should be changed by adding a warning regarding the risk of bleeding during cardiac surgery. 6% hetastarch in saline solution is a plasma volume expander that competes in the market with Hextend. No such recommendation was made for Hextend since it is a different product.

Albumin produced from human plasma is also used as plasma volume expander, but it is expensive and subject to supply shortages. Additionally, an FDA warning has cautioned physicians about the risk of administering albumin to seriously ill patients.

BioTime has not attempted to synthesize potentially toxic and costly oxygen carrying molecules such as hemoglobin because the loss of fluid volume and physiological balance may contribute as much to shock as the loss of the oxygen carrying component of the blood. Surgical and trauma patients are routinely given supplemental oxygen and retain a substantial portion of their own red blood cells. Whole blood or packed red blood cells are generally not transfused during surgery or in trauma care until several units of plasma volume expanders have been administered and the patient's hematocrit has fallen to the transfusion trigger. Therefore, the lack of oxygen carrying molecules in the Company's solutions should not pose a significant contraindication to use.

However, BioTime scientists have conducted laboratory animal experiments in which they have shown that Hextend can be successfully used in conjunction with a hemoglobin-based oxygen carrier solution approved for veterinary purposes to completely replace the animal's circulating blood volume without any subsequent transfusion and without the use of supplemental oxygen. By diluting these oxygen carrier solutions, Hextend may reduce the potential toxicity and costs associated with the use of those products. Once such solutions have received regulatory approval and become commercially available, this sort of protocol may prove valuable in markets in parts of the developing world where the blood supply is extremely unsafe. These applications may also be useful in combat where logistics make blood use impracticable.

Hextend is BioTime's proprietary hetastarch-based synthetic blood plasma volume expander, designed especially to treat hypovolemia in surgery where patients experience significant blood loss. An important goal of the Hextend development program was to produce a product that can be used in multi-liter volumes. The safety related secondary endpoints targeted in the U.S. clinical study included those involving coagulation. The Company believes that the low incidence of adverse

events related to blood clotting in the Hextend patients demonstrates that Hextend may be safely used in amounts exceeding 1.5 liters. An average of 1.6 liters of Hextend was used in the Phase III clinical trials, with an average of two liters for patients who received transfused blood products. Since then, more than half a million units (500 mL bags) have been sold for commercial purposes, and the use of quantities of 7 to 8 liters per patient have been reported. There have been no serious adverse events directly related to the use of Hextend even when used in these large volumes.

Hextend is also being used in surgery with cardio-pulmonary bypass circuits. In order to perform heart surgery, the patient's heart must be stopped and a mechanical apparatus is used to oxygenate and circulate the blood. The cardio-pulmonary bypass apparatus requires a blood compatible fluid such as Hextend to commence and maintain the process of diverting the patient's blood from the heart and lungs to the mechanical oxygenator and pump. In a recent clinical trial, cardiac surgery patients treated with Hextend, maintained more normal kidney function, experienced less pain and nausea, showed no deep venous thromboses, avoided dialysis, and had shorter delay times to first meal compared to those treated with other fluids.

PentaLyte is BioTime's proprietary pentastarch-based synthetic plasma expander, designed especially for use when a faster elimination of the starch component is desired and acceptable. Although Hextend can be used in these cases, some physicians appear to prefer a solution which could be metabolized faster and excreted earlier when the longer term protection provided by Hextend is not required. PentaLyte combines the physiologically balanced Hextend formulation with pentastarch that has a lower molecular weight and degree of substitution than the hetastarch used in Hextend. Plasma expanders containing pentastarch are currently widely used around the world. BioTime has completed its Phase I clinical study and is planning more advanced PentaLyte clinical trials. BioTime's present plan is to seek approval of PentaLyte for use in the treatment of hypovolemia.

HetaCool is a modified formulation of Hextend. HetaCool is specifically designed for use at low temperatures. Surgeons are already using Hextend and a variety of other solutions to carry out certain limited procedures involving shorter term (up to nearly one hour) arrest of brain and heart function at temperatures between 15^{o} and 25^{o} C. However, BioTime is not aware of any fluid currently used in medical practice or any medically-approved protocol allowing operations which can completely replace all of a patient's blood at temperatures close to the ice point. The Company believes that very low temperature bloodless surgical techniques could be developed for open heart and minimally invasive closed chest cardiovascular surgeries, removal of tumors from and the repair of aneurysms in the brain, heart, and other areas, as well as in the treatment of trauma, toxicity and cancer.

The Company is in the process of preparing an amendment to its Hextend IND application to conduct clinical trials using HetaCool as a solution to replace all of a patient's circulating blood volume during profound hypothermic (carried out at near-freezing temperatures) surgical procedures. The experimental protocol for the planned blood replacement clinical trial is being tested on animal

subjects. HetaCool would be introduced into the patient's body during the cooling process. Once the patient's body temperature is nearly ice cold, and heart and brain function are temporarily arrested, the surgeon would perform the operation. During the surgery, HetaCool may be circulated throughout the body in place of blood, or the circulation may be arrested for a period of time if an interruption of fluid circulation is required. Upon completion of the surgery, the patient would be slowly warmed and blood would be transfused.

Cardiac surgeons are working to develop innovative procedures to repair damaged coronary arteries and heart valves. If optically guided surgical instruments can be inserted into the heart through blood vessels or small incisions, there may be no need to open the patient's chest cavity. BioTime believes that HetaCool may be useful in these minimally invasive closed chest cardiac procedures because the solution is transparent and if it were used to completely replace blood at low temperatures it would permit surgeons to use their optically guided instruments inside the heart or blood vessels without having their view obstructed by blood. The use of BioTime's solutions may also allow better control over stopping and starting the heart, as well as extending the time period of such surgeries.

HetaCool has been used to completely replace the blood volume of hamsters, dogs, pigs, and baboons at temperatures approaching freezing. Many of these animal subjects survived long term after hypothermic blood substitution with HetaCool. In these laboratory tests, the animals' blood was replaced by HetaCool and they were chilled for one to more than four hours with deep body temperatures between $1^{o}C$ and $10^{o}C$. Hextend was used to partially replace blood during cancer surgery in which a patient's body temperature was lowered to $15^{o}C$ and his heart was stopped for 27 minutes while the tumor was removed. The patient recovered without incident, and a case study of the procedure was published in the April 2002 of the Canadian Journal of Anesthesia.

BioTime has recently launched a research program using HetaCool in animal models of trauma at the State University of New York Health Science Center in Brooklyn. Preliminary laboratory results there have already supported the feasibility of using HetaCool to treat subjects following severe hemorrhage. The use of HetaCool at near-freezing temperatures also will be studied in animal models of cardiovascular surgery at the Texas Heart Institute in Houston. The project has been approved by the appropriate internal committees, and is awaiting the beginning of experimentation.

BioTime is developing a new formulation that has allowed the revival of hamsters after as long as 6.5 hours of hypothermic blood substitution during which time the animals' heartbeat and circulation were stopped.

Organ Transplant Products

The Market for Organ Preservation Solutions

Organ transplant surgery is a growing field. Each year in the United States, approximately 5,000 donors donate organs, and approximately 5,000 people donate skin, bone and other tissues. As more surgeons have gained the necessary expertise and surgical methods have been refined, the number of transplant procedures has increased, as has the percentage of successful transplants. Organ transplant surgeons and their patients face two major obstacles, namely the shortage of available organs from donors, and the limited amount of time that a transplantable organ can be kept viable between the time it is harvested from the donor and the time it is transplanted into the recipient.

The scarcity of transplantable organs makes them too precious to lose and increases the importance of effective preservation technology and products. Current organ removal and preservation technology generally requires multiple preservation solutions to remove and preserve effectively different groups of organs. The removal of one organ can impair the viability of other organs. Available technology does not permit surgeons to keep the remaining organs viable within the donor's body for a significant time after the first organ is removed. Currently, an organ available for transplant is flushed with an ice cold solution during the removal process to deactivate the organ and preserve its tissues, and then the organ is transported on ice to the donee. The ice cold solutions currently used, together with transportation on ice, keep the organ healthy for only a short period of time. For example, the storage time for hearts is limited to approximately six hours. Because of the short time span available for removal and transplant of an organ, potential organ donees may not receive the needed organs.

BioTime is seeking to address this problem by developing a more effective organ preservation solution that will permit surgeons to harvest all transplantable organs from a single donor. The Company believes that preserving the viability of all transplantable organs and tissues simultaneously, at low temperatures, would extend by several hours the time span in which the organs can be preserved prior to transplant.

Using HetaCool for Multi-Organ Preservation. The Company is seeking to develop HetaCool for use as a single solution that can simultaneously preserve all of a single donor's organs. When used as an organ preservation solution, HetaCool would be perfused into the donor's body while the body is chilled, thereby eliminating an undesirable condition called "warm ischemia," caused when an organ is warm while its blood supply is interrupted. The use of HetaCool in conjunction with the chilling of the body should help to slow down the process of organ deterioration by a number of hours so that a surgeon can remove all organs for donation and transplant. The Company's current estimates are that each such preservation procedure could require as much as 50 liters of HetaCool.

The Company believes that the ability to replace an animal's blood with the Company's HetaCool solution, to maintain the animal at near freezing temperatures for several hours, and then revive the animal, would demonstrate that the solution could be used for multi-organ preservation.

Company scientists have revived animals after more than six hours of cold blood-substitution, and have observed heart function in animals maintained cold and blood-substituted for more than eight hours. An objective of the Company's research and development program is to extend the time span in which animal subjects can be maintained in a cold, blood-substituted state before revival or removal of organs for transplant purposes. Organ transplant procedures using animal subjects could then be conducted to test the effectiveness of Hextend as an organ preservative.

A successful transplant of a lung cooled inside the donor's body prior to transplant has recently been reported in Sweden. The patient who received the lung was reported to be doing well several months later. The success of that transplant, which did not involve the use of a BioTime product, involved the preservation and transplant of a single organ, but indicates that hypothermic techniques can be used to preserve organs in the donor prior to removal for transplant.

Long-term Tissue and Organ Banking

The development of marketable products and technologies for the preservation of tissues and vital organs for weeks and months is a long-range goal of the Company's research and development plan. To permit such long-term organ banking the Company is attempting to develop products and technologies that can protect tissues and organs from the damage that occurs when human tissues are subjected to subfreezing temperatures.

HetaFreeze is one of a family of BioTime's freeze-protective solutions which may ultimately allow the extension of time during which organs and tissues can be stored for future transplant or surgical grafting. In laboratory experiments, BioTime's proprietary freeze-protective compounds have already been used to preserve skin when used as a whole animal perfusate. Silver dollar size full thickness shaved skin samples have been removed after saturation with HetaFreeze solution, frozen at liquid nitrogen temperatures and stored for periods ranging from days to weeks. The grafts were then warmed and sewn onto the backs of host animals. Many of these grafts survived. In more recent experiments, rat femoral arteries were frozen to liquid nitrogen temperatures, later thawed and then transplanted into host rats. These grafts were proven to last up to four months. The work was published in the October 2002 issue of the Annals of Plastic Surgery.

In other laboratory experiments, BioTime scientists have shown that animals can be revived to consciousness after partial freezing with their blood replaced by HetaFreeze. While this technology has not developed to an extent that allows long term survival of the laboratory subjects, and their organs, a better understanding of the effects of partial freezing could allow for extended preservation times for vital organs, skin and blood vessels.

Other Potential Uses of BioTime Solutions

Isolated regional perfusion of anti-cancer drugs has been used to treat melanoma of the limbs, and inoperable tumors of the liver. The Company believes that employing such a procedure while the patient is kept in ice-cold blood-substitution may allow high doses of toxic anti-cancer drugs to be directed at inoperable tumors within vital organs, which would selectively be warmed. Keeping the rest of the patient in a cold, blood substituted state may reduce or eliminate the circulation of the toxic drugs to healthy tissues.

BioTime considers such surgical techniques to be a longer range goal of its research and development program for hypothermic surgery products. Use of this complex technology in the practice of oncology can occur only after ice-cold blood-substitution has advanced to an appropriate level of safety and effectiveness.

Research and Development Strategy

From inception through December 31, 2002, the Company has expensed $22,737,627 on research and development. The greatest portion of BioTime's research and development efforts have been devoted to the development of Hextend, PentaLyte and HetaCool for conventional surgery, emergency care, low temperature surgery, and multi-organ preservation. A lesser portion of the Company's research and development efforts have been devoted to developing solutions and protocols for storing organs and tissues at subfreezing temperatures. In the future the Company may explore other applications of its products and technologies, including cancer chemotherapy. As the first products achieve market entry, more effort will be expended to bring the next tier of products to maturity.

A major focus of the Company's research and development effort has been on products and technology to significantly reduce or eliminate the need for blood products in surgery and trauma care. The Company has recently conducted preliminary studies using Hextend in a pressurized oxygen environment and found that Hextend can replace nearly all, or in some cases all, of the circulating blood of rats. Some of the rats were able to live long term without a subsequent transfusion, while others received their own blood back. In other cases, Hextend was used in large volumes in association with a hemoglobin-based oxygen carrier solution approved for veterinary use. When used in this way, rats were able to live long term after all their circulating blood was replaced at normal body temperature breathing room air.

In still other experiments, rats were allowed to lose approximately half their circulating blood volume, and then allowed to develop and remain in respiratory arrest from 10-18 minutes. They were then resuscitated with Hextend and either ventilated with 100% oxygen, or in a hyperbaric oxygen chamber containing 100% oxygen at two atmospheres above normal pressure. Some of the rats recovered and lived long term after as long as 15 minutes of respiratory arrest. The hyperbaric chamber appeared to have improved the outcome in a number of cases.

These studies indicate that Hextend can potentially be used in a variety of protocols in which donor blood is difficult or impossible to use, such as on the battlefield, or in parts of the world where there is a shortage of disease-free blood.

Another major focus of the Company's research and development effort has been on products and technology to extend the time animals can be kept cold and blood-substituted, and then revived without physical impairment. An integral part of that effort has been the development of techniques and procedures or "protocols" for use of the Company's products. A substantial amount of data has been accumulated through animal tests, including the proper surgical techniques, drugs and anesthetics, the temperatures and pressures at which blood and blood replacement solutions should be removed, restored and circulated, solution volume, the temperature range, and times, for maintaining circulatory arrest, and the rate at which the subject should be rewarmed.

Experiments intended to test the efficacy of the Company's low temperature blood replacement solutions and protocols for surgical applications involve replacing the animal's blood with the Company's solution, maintaining the animal in a cold blood-substituted state for a period of time, and then attempting to revive the animal. Experiments for multi-organ preservation involve the maintenance of the animal subjects at cold temperatures for longer periods of time than would be required for many surgical applications, followed by transplant procedures to test the viability of one or more of the subject's vital organs.

The Company is conducting experiments at hospitals, medical schools, and university research facilities. These collaborative research programs are testing solutions and protocols developed in the Company's laboratories and, in some cases, comparing the efficacy of the Company's products with commercially available FDA approved products manufactured by other companies. Collaborative gerontological research is being conducting at the University of California at Berkeley. The Company intends to continue to foster relations with research hospitals and medical schools for the purpose of conducting collaborative research projects because it believes that such projects will introduce the Company's potential products to members of the medical profession and provide the Company with objective product evaluations from independent research physicians and surgeons.

BioTime has also expanded its product development efforts by initiating an interventive gerontology program focused on the identification of specific factors central to aging of the brain. The program, which is being undertaken with the cooperation of the University of California at Berkeley, is focused on the development of medical and pharmacological strategies to treat senescence related consequences.

Licensing

Abbott Laboratories

On April 23, 1997, the Company and Abbott entered into a License Agreement under which the Company granted to Abbott an exclusive license to manufacture and sell Hextend in the United States and Canada for all therapeutic uses other than those involving hypothermic surgery where the patient's body temperature is lower than 12°C ("Hypothermic Use"), or replacement of substantially all of a patient's circulating blood volume ("Total Body Washout"). The Company has retained all rights to manufacture, sell or license Hextend and other products in all other countries.

Under the Abbott License Agreement, Abbott has agreed to pay the Company up to $40,000,000 in license fees, of which $2,500,000 has been paid to date for the grant of the license and the achievement of certain milestones. Up to $37,500,000 of additional license fees will be payable based upon annual net sales of Hextend, at the rate of 10% of annual net sales if annual net sales exceed $30,000,000 or 5% if annual net sales are between $15,000,0000 and $30,000,000. Abbott's obligation to pay licensing fees on sales of Hextend will expire on the earlier of January 1, 2007 or, on a country by country basis, when all patents protecting Hextend in the applicable country expire or any third party obtains certain regulatory approvals to market a generic equivalent product in that country.

In addition to the license fees, Abbott will pay the Company a royalty on total annual net sales of Hextend. The royalty rate will be 5% plus an additional .22% for each $1,000,000 of annual net sales, up to a maximum royalty rate of 36%. The royalty rate for each year will be applied on a total net sales basis. Abbott's obligation to pay royalties on sales of Hextend will expire in the United States or Canada when all patents protecting Hextend in the applicable country expire and any third party obtains certain regulatory approvals to market a generic equivalent product in that country.

Abbott has agreed that the Company may convert Abbott's exclusive license to a non-exclusive license or may terminate the license outright if certain minimum sales and royalty payments are not met. In order to terminate the license outright, the Company would pay a termination fee in an amount ranging from the milestone payments made by Abbott to an amount equal to three times prior year net sales, depending upon when termination occurs. Abbott's exclusive license also may terminate, without the payment of termination fees by the Company, if Abbott fails to market Hextend. Abbott has agreed to manufacture Hextend for sale by the Company in the event that Abbott's exclusive license is terminated in either case.

Abbott has certain rights to acquire additional licenses to manufacture and sell the Company's other plasma expander products in the United States and Canada. If Abbott exercises these rights to acquire a license to sell such products for uses other than Hypothermic Surgery or Total Body Washout, in addition to paying royalties, Abbott will be obligated to pay a license fee based upon the Company's direct and indirect research, development and other costs allocable to the new product. If Abbott desires to acquire a license to sell any of the Company's products for use in Hypothermic Surgery or Total Body Washout, the license fees and other terms of the license will be subject to negotiation between the parties. For the purpose of determining the applicable royalty rates, net sales of any such new products licensed by Abbott will be aggregated with sales of Hextend. If Abbott does not exercise its right to acquire a new product license, the Company may manufacture and sell the product itself or may license others to do so.

In order to preserve its rights to obtain an exclusive license for PentaLyte under its License Agreement, Abbott notified the Company that Abbott will supply BioTime with batches of PentaLyte, characterization and stability studies, and other regulatory support needed for BioTime to file an IND and conduct clinical studies.

The foregoing description of the Abbott License Agreement is a summary only and is qualified in all respects by reference to the full text of that License Agreement.

CJ Corp.

On March 27, 2003, the Company and CJ entered into the CJ Agreement under which the Company granted to CJ an exclusive license to manufacture and sell Hextend and PentaLyte in the Republic of Korea for human therapeutic uses at temperatures above 12°C.

Under the CJ Agreement, the Company will receive a license fee of $800,000, to paid in two installments, including a payment of $500,000 within 30 days after the signing of the CJ Agreement and $300,000 within 30 days after an application for regulatory approval to manufacture and market Hextend is filed in Korea. CJ will be responsible for obtaining the regulatory approvals required to manufacture and market Hextend and PentaLyte, including conducting any clinical trials that may be required, and will bear all related costs and expenses.

In addition to the license fees, CJ will pay the Company a royalty on sales of the licensed products. The royalty will range from $1.30 to $2.60 per 500 mL unit of product sold, depending upon the price approved by Korea's National Health Insurance. Royalties will be paid quarterly. CJ's obligation to pay royalties on sales of Hextend will expire when all patents protecting Hextend in Korea expire or any third party obtains regulatory approvals to market a generic equivalent product in Korea, whichever first occurs.

The Company may convert CJ's exclusive license to a non-exclusive license if certain minimum sales and royalty payments are not met.

CJ has right of first refusal to acquire additional licenses to manufacture and sell the Company's other plasma expander products in Korea.

The foregoing description of the CJ Agreement is a summary only and is qualified in all respects by reference to the full text of the CJ Agreement.

Other Licensing Efforts

The Company is discussing prospective licensing arrangements with other pharmaceutical companies that have expressed their interest in marketing the Company's products abroad. In licensing arrangements that include marketing rights, the participating pharmaceutical company would be entitled to retain a large portion of the revenues from sales to end users and would pay the Company a royalty on net sales. There is no assurance that any such licensing arrangements can be made.

Manufacturing

Manufacturing Arrangements

Abbott manufactures Hextend for the North American market, and NPBI International, BV, a Netherlands company ("NPBI"), has manufactured lots of Hextend for the Company's use in seeking regulatory approval in Europe. Abbott and NPBI have the facilities to manufacture Hextend and other BioTime products in commercial quantities. If Abbott chooses not to obtain a license to manufacture and market another BioTime product, and if NPBI declines to manufacture BioTime products on a commercial basis, other manufacturers will have to be found that would be willing to manufacture products for BioTime or any licensee of BioTime products.

Facilities Required

Any products that are used in clinical trials for regulatory approval in the United States or abroad, or that are approved by the FDA or foreign regulatory authorities for marketing, have to be manufactured according to "good manufacturing practices" at a facility that has passed regulatory inspection. In addition, products that are approved for sale will have to be manufactured in commercial quantities, and with sufficient stability to withstand the distribution process, and in compliance with such domestic and foreign regulatory requirements as may be applicable. The active ingredients and component parts of the products must be either USP or themselves manufactured according to "good manufacturing practices."

The Company does not have facilities to manufacture its products in commercial quantities, or under "good manufacturing practices." Acquiring a manufacturing facility would involve significant expenditure of time and money for design and construction of the facility, purchasing equipment, hiring and training a production staff, purchasing raw material and attaining an efficient level of production. Although the Company has not determined the cost of constructing production facilities that meet FDA requirements, it expects that the cost would be substantial, and that the Company would need to raise additional capital in the future for that purpose. To avoid the incurrence of those expenses and delays, the Company is relying on contract and licensing arrangements with established pharmaceutical companies for the production of the Company's products, but there can be no assurance that satisfactory arrangements will be made for any new products that the Company may develop.

Raw Materials

Although most ingredients in the products being developed by the Company are readily obtainable from multiple sources, the Company knows of only a few manufacturers of the hydroxyethyl starches that serve as the drug substance in Hextend, PentaLyte and HetaCool. Abbott presently has a source of supply of the hydroxyethyl starch used in Hextend, PentaLyte and HetaCool, and has agreed to maintain a supply sufficient to meet market demand for Hextend in the United States and Canada. The Company believes that it will be able to obtain a sufficient supply of starch for its needs in the foreseeable future, although the Company does not have supply agreements in place. If for any reason a sufficient supply of hydroxyethyl starch could not be obtained, the Company or a licensee would have to acquire a manufacturing facility and the technology to produce the hydroxyethyl starch according to good manufacturing practices. The Company would have to raise additional capital to participate in the development and acquisition of the necessary production technology and facilities.

If arrangements cannot be made for a source of supply of hydroxyethyl starch, the Company would have to reformulate its solutions to use one or more other starches that are more readily available. In order to reformulate its products, the Company would have to perform new laboratory testing to determine whether the alternative starches could be used in a safe and effective synthetic plasma volume expander, low temperature blood substitute or organ preservation solution. If needed, such testing would be costly to conduct and would delay the Company's product development program, and there is no certainty that any such testing would demonstrate that an alternative ingredient, even if chemically similar to the one currently used, would be as safe or effective.

Marketing

Hextend is being sold by Abbott in the United States. Regulatory approval has been obtained in Canada, where Abbott is on the verge of launching the product.

Hextend has been approved for use and added to hospital formularies in hundreds of hospitals. Inclusion on hospital formularies is important because it enables physicians to obtain Hextend without the need to special order it.

BioTime recently granted CJ the right to manufacture and market Hextend and PentaLyte in Korea, but CJ will have to obtain regulatory approvals before it can market either product.

Because Hextend is a surgical product, sales efforts must be directed to physicians and hospitals. The Hextend marketing strategy is designed to reach its target customer base through sales calls and an advertising campaign focused on the use of a plasma-like substance to replace lost blood volume and the ability of Hextend to support vital physiological processes.

Hextend competes with other products used to treat or prevent hypovolemia, including albumin, generic 6% hetastarch solutions, and crystalloid solutions. The competing products have been commonly used in surgery and trauma care for many years, and in order to sell Hextend, physicians must be convinced to change their product loyalties. Although albumin is expensive, crystalloid solutions and generic 6% hetastarch solutions sell at low prices. In order to compete with other products, particularly those that sell at lower prices, Hextend will have to be recognized as providing medically significant advantages.

The Blood Products Advisory Committee of the FDA has recommended to the FDA that the labeling of 6% hetastarch in saline should be changed by adding a warning regarding the risk of bleeding during cardiac surgery. No such recommendation was made for Hextend since it is a different product. An article discussing the meeting entitled "6% Hetastarch in Saline Linked To Excessive Bleeding in Bypass Surgery" appeared in the December 2002 edition of Anesthesiology News. BioTime understands that a number of hospitals have switched from 6% hetastarch in saline to Hextend due to these concerns.

As part of the marketing program, a number of studies have been conducted that show the advantages of receiving Hextend and other BioTime products during surgery. As these studies are completed, the results are presented at medical conferences and articles written for publication in medical journals. The Company is also aware of independent studies using Hextend that are being conducted by physicians and hospitals who may publish their findings in medical journals or report their findings at medical conferences. The outcome of future medical studies and timing of the publication or presentation of the results could have an effect on Hextend sales.

Government Regulation

The FDA and foreign regulatory authorities will regulate the Company's proposed products as drugs, biologicals, or medical devices, depending upon such factors as the use to which the product will be put, the chemical composition and the interaction of the product on the human body. In the United States, products that are intended to be introduced into the body, such as blood substitute solutions for low temperature surgery and plasma expanders, will be regulated as drugs and will be reviewed by the FDA staff responsible for evaluating biologicals.

The Company's domestic human drug products will be subject to rigorous FDA review and approval procedures. After testing in animals, an Investigational New Drug (IND) application must be filed with the FDA to obtain authorization for human testing. Extensive clinical testing, which is generally done in three phases, must then be undertaken at a hospital or medical center to demonstrate optimal use, safety and efficacy of each product in humans. Each clinical study is conducted under the auspices of an independent Institutional Review Board ("IRB"). The IRB will consider, among other things, ethical factors, the safety of human subjects and the possible liability of the institution. The time and expense required to perform this clinical testing can far exceed the time and expense of the research and development initially required to create the product. No action can be taken to market any therapeutic product in the United States until an appropriate New Drug Application ("NDA") has been approved by the FDA. Even after initial FDA approval has been obtained, further studies may be required to provide additional data on safety or to gain approval for the use of a product as a treatment for clinical indications other than those initially targeted. In addition, use of these products during testing and after marketing could reveal side effects that could delay, impede or prevent FDA marketing approval, resulting in a FDA-ordered product recall, or in FDA-imposed limitations on permissible uses.

The FDA regulates the manufacturing process of pharmaceutical products, requiring that they be produced in compliance with "good manufacturing practices." See "Manufacturing." The FDA also regulates the content of advertisements used to market pharmaceutical products. Generally,

claims made in advertisements concerning the safety and efficacy of a product, or any advantages of a product over another product, must be supported by clinical data filed as part of an NDA or an amendment to an NDA, and statements regarding the use of a product must be consistent with the FDA approved labeling and dosage information for that product.

Sales of pharmaceutical products outside the United States are subject to foreign regulatory requirements that vary widely from country to country. Even if FDA approval has been obtained, approval of a product by comparable regulatory authorities of foreign countries must be obtained prior to the commencement of marketing the product in those countries. The time required to obtain such approval may be longer or shorter than that required for FDA approval.

Patents and Trade Secrets

The Company currently holds 21 issued United States patents having composition and methods of use claims covering BioTime's proprietary solutions, including Hextend and PentaLyte. The most recent U.S. patents were issued during 2002. Some of BioTime's allowed claims in the United States, which include the composition and methods of use of Hextend and PentaLyte, are expected to remain in force until 2019. Forty patents covering certain of the Company's solutions have also been issued in the countries of the European Union, Australia, Israel, Russia, Hong Kong, South Africa, Japan, and South Korea. Additional patent applications have been filed in the United States and numerous other countries for Hextend, PentaLyte and other solutions. Certain device patents describing BioTime's hyperbaric chamber, and proprietary microcannula have also been issued in the United States and overseas, both of which — although only used in research so far — have possible indications in clinical medicine.

There is no assurance that any additional patents will be issued, or that any patents now held or later obtained by the Company will not be successfully challenged by third parties and declared invalid or infringing of third party claims. Further, the enforcement of patent rights often requires litigation against third party infringers, and such litigation can be costly to pursue.

In addition to patents, the Company will rely on trade secrets, know-how and continuing technological advancement to maintain its competitive position. The Company has entered into intellectual property, invention and non-disclosure agreements with its employees and it is the Company's practice to enter into confidentiality agreements with its consultants. There can be no assurance, however, that these measures will prevent the unauthorized disclosure or use of the Company's trade secrets and know-how or that others may not independently develop similar trade secrets and know-how or obtain access to the Company's trade secrets, know-how or proprietary technology.

Competition

The Company's solutions will compete with products currently used to treat or prevent hypovolemia, including albumin, other colloid solutions, and crystalloid solutions presently manufactured by established pharmaceutical companies, and with human blood products. Some of these products, in particular crystalloid solutions, are commonly used in surgery and trauma care and sell at low prices. In order to compete with other products, particularly those that sell at lower prices, the Company's products will have to be recognized as providing medically significant advantages. Like Hextend, the competing products are being manufactured and marketed by established pharmaceutical companies that have large research facilities, technical staffs and financial and marketing resources. B.Braun presently markets Hespan, an artificial plasma volume expander containing 6% hetastarch in saline solution. Abbott and Baxter International manufacture and sell a generic equivalent of Hespan. As a result of the introduction of generic plasma expanders intended to compete with Hespan, competition in the plasma expander market has intensified and wholesale prices have declined. Abbott, which markets Hextend for BioTime in the Untied States, is also the leading seller of generic 6% hetastarch in saline solution. Aventis Behring, LLC, Baxter International, and Alpha Therapeutics sell albumin, and Abbott, Baxter International and B.Braun sell crystalloid solutions

To compete with new and existing plasma expanders, the Company has developed products that contain constituents that may prevent or reduce the physiological imbalances, bleeding, fluid overload, edema, poor oxygenation, and organ failure that can occur when competing products are used. To compete with existing organ preservation solutions, the Company has developed solutions that can be used to preserve all organs simultaneously and for long periods of time.

A number of other companies are known to be developing hemoglobin and synthetic red blood cell substitutes and technologies. BioTime's products have been developed for use either before red blood cells are needed or in conjunction with the use of red blood cells. In contrast, hemoglobin and other red blood cell substitute products are designed to remedy ischemia and similar conditions that may result from the loss of oxygen carrying red blood cells. Those products would not necessarily compete with the Company's products unless the oxygenating molecules were included in solutions that could replace fluid volume and prevent or reduce the physiological imbalances as effectively as the Company's products. Generally, red blood cell substitutes are more expensive to produce and potentially more toxic than Hextend and PentaLyte.

Competition in the areas of business targeted by the Company is likely to intensify further as new products and technologies reach the market. Superior new products are likely to sell for higher prices and generate higher profit margins once acceptance by the medical community is achieved. Those companies that are successful in introducing new products and technologies to the market first may gain significant economic advantages over their competitors in the establishment of a customer base and track record for the performance of their products and technologies. Such companies will also benefit from revenues from sales which could be used to strengthen their research and development, production, and marketing resources. All companies engaged in the medical products industry face the risk of obsolescence of their products and technologies as more advanced or cost effective products and technologies are developed by their competitors. As the industry matures, companies will compete based upon the performance and cost effectiveness of their products.

Employees

As of December 31, 2002, the Company employed seven persons on a full-time basis and two persons on a part-time basis. Three full-time employees and one part-time employee hold Ph.D. Degrees in one or more fields of science.

Risk Factors

Some of the factors that could materially affect the Company's operations and prospects are discussed below. There may be other factors that are not mentioned here or of which BioTime is not presently aware that could also affect BioTime's operations.

BioTime May Not Succeed In Marketing Its Products Due to the Availability of Competing Products

BioTime's ability to generate operating revenue depends upon its success in developing and marketing its products. BioTime may not succeed in marketing its products and may not receive sufficient revenues from product sales to meet operating expenses or to earn a profit. In this regard, sales of Hextend to date have not been sufficient to generate an amount of royalties or licensing fees sufficient to cover BioTime's operating expenses. Factors that affect the marketing of the Company's products include the following:

- Hextend and BioTime's other plasma expander products will compete with other products that are commonly used in surgery and trauma care and sell at low prices.
- In order to compete with other products, particularly those that sell at lower prices, BioTime products will have to provide medically significant advantages.
- Physicians and hospitals may be reluctant to try a new product due to the high degree of risk associated with the application of new technologies and products in the field of human medicine.
- Competing products are being manufactured and marketed by established pharmaceutical companies. For example, B. Braun/McGaw presently markets Hespan, an artificial plasma volume expander, and Abbott and Baxter International, Inc. manufacture and sell a generic equivalent of Hespan.
- There also is a risk that BioTime's competitors may succeed in developing safer or more effective products that could render BioTime's products and technologies obsolete or noncompetitive.

BioTime Will Spend a Substantial Amount of Capital on Research and Development But Might Not Succeed in Developing Products and Technologies That Are Useful In Medicine.

- BioTime is attempting to develop new medical products and technologies.

- Many of BioTime's experimental products and technologies have not been applied in human medicine and have only been used in laboratory studies on animals. These new products and technologies might not prove to be safe and efficacious in the human medical applications for which they were developed.

- The experimentation that the Company is doing is costly, time consuming and uncertain as to its results. BioTime spent $1,107,109 on research and development during 2002, and $22,737,627 in total from BioTime's inception on November 30, 1990 through December 31, 2002.

- If BioTime is successful in developing a new technology or product, refinement of the new technology or product and definition of the practical applications and limitations of the technology or product may take years and require the expenditure of large sums of money. For example, BioTime spent approximately $5,000,000 on research and development of Hextend before commencing clinical trials on humans during October 1996. The cost of completing the Hextend clinical trials and preparing an FDA application was approximately $3,000,000. These costs exclude corporate overhead included in general and administrative costs in the Company's financial statements.

- Future clinical trials of new products such as PentaLyte may take longer and may be more costly than BioTime's Hextend clinical trials. The FDA permitted the Company to proceed directly into a Phase III clinical trial of Hextend involving only 120 patients because the active ingredients in Hextend had already been approved for use by the FDA in other products. Because PentaLyte contains a starch that has not been approved by the FDA for use in a plasma volume expander, the Company had to complete a Phase I clinical trial of PentaLyte, and may have to complete a Phase II clinical trial in addition to a Phase III trial, or a combined Phase II/Phase III trial, that will involve more patients than the Hextend trials. BioTime does not yet know the scope or cost of the clinical trials that the FDA will require for PentaLyte or the other products BioTime is developing.

The Company Has Incurred Operating Losses Since Inception and Does Not Know If It Will Attain Profitability

From November 1990, the date BioTime was incorporated, through December 31, 2002 the Company incurred $33,615,170 of cumulative losses. BioTime's net losses for the fiscal years ended December 31, 2000, 2001 and 2002 were $4,925,024, $3,658,825 and $2,844,932, respectively. BioTime's ability to generate sufficient operating revenue to earn a profit depends upon its success in developing and marketing or licensing its products and technology for medical use.

BioTime Might Not Be Able To Raise Additional Capital Needed To Pay Operating Expenses

BioTime plans to continue to incur substantial research, product development, and regulatory expenses, and will need to raise additional capital to pay operating expenses until it is able to generate sufficient revenues from product sales, royalties, and license fees. BioTime has not received an amount of royalties and licensing fees from the sale of Hextend sufficient to cover operating expenses. As of December 31, 2002, BioTime had $1,284,432 of cash and cash equivalents on hand. At the current rate of spending, those funds will last approximately 15 months. The amount and pace of research and development work that the Company can do or sponsor, and the Company's ability to commence and complete clinical trials required to obtain FDA and foreign regulatory approval of products, depends upon the amount of money the Company has. Future research costs are not presently determinable due to many factors, including the inherent uncertainty of those costs and the uncertainty as to the timing, source, and amount of capital that will become available for those projects. BioTime has already curtailed the pace of its product development efforts due to the limited amount of funds available. Further laboratory and clinical studies may have to be postponed, unless the Company's cash resource increase through a growth in revenues or additional equity investment or borrowing. In addition, BioTime must repay $3,350,000 of debenture indebtedness by August 2004. Although the Company will continue to seek licensing fees from pharmaceutical companies for licenses to manufacture and market its products abroad, it is likely that additional sales of equity or debt securities will be required to meet short-term capital needs and to pay the debenture indebtedness. Sales of additional equity securities could result in the dilution of the interests of present shareholders. The Company may not be able to raise a sufficient amount of additional funds to permit the development and marketing of BioTime products. Unless BioTime is able to generate sufficient revenue or raise additional funds when needed, it is likely that it will be unable to continue its planned activities, even if it is making progress with its research and development projects.

If BioTime is Unable To Enter Into Additional Licensing Or Manufacturing Arrangements, It May Have to Incur Significant Expense To Acquire Manufacturing Facilities And A Marketing Organization

The Company presently does not have adequate facilities or resources to manufacture its products and the ingredients used in its products. The Company plans to enter into arrangements with pharmaceutical companies for the production and marketing of BioTime products. BioTime have granted Abbott an exclusive license to manufacture and market Hextend in the United States and Canada, and has granted CJ a license to manufacture and market Hextend and PentaLyte in South Korea. Although a number of pharmaceutical companies have expressed their interest in obtaining licenses to manufacture and market BioTime products in other countries, BioTime might not be successful in negotiating other licensing arrangements. If licensing or manufacturing arrangements cannot be made on acceptable terms, BioTime will have to construct or acquire its own manufacturing facilities and establish its own marketing organization, which would entail significant expenditures of time and money.

BioTime's Business Could Be Adversely Affected If It Loses the Services Of The Key Personnel Upon Whom It Depends

The Company depends to a considerable degree on the continued services of executive officers, especially Paul Segall, its Chief Executive Officer. BioTime has $1,000,000 of key man insurance on Dr. Segall but not on any other executive officer. The loss of the services of any of the executive officers could have a material adverse effect on us. BioTime does not presently have long term employment agreements with any of its executive officers because its present financial situation precludes making long term compensation commitments in amounts commensurate with prevailing salaries of executive officers of similar companies in the San Francisco Bay Area. In addition, BioTime's success will depend, among other factors, upon successful recruitment and retention of additional highly skilled and experienced management and technical personnel.

Risks Related to BioTime's Industry

The Company will face certain risks arising from regulatory, legal, and economic factors that affect its business and the business of other pharmaceutical development companies. Because BioTime is a small company with limited revenues and limited capital resources, it may be less able to bear the financial impact of these risks than larger companies that have substantial income and available capital.

If BioTime Does Not Receive FDA and Other Regulatory Approvals It Will Not Be Permitted To Sell Its Products

The products that the Company develops cannot be sold until the FDA and corresponding foreign regulatory authorities approve the products for medical use. BioTime has received FDA and Canadian approvals to market Hextend in the United States and Canada only. A Phase I clinical trial of PentaLyte has been completed that provided data concerning the safety of PentaLyte, but BioTime does not presently have sufficient funds for the Phase II or later stage clinical trials that will be necessary to demonstrate that PentaLyte can be used safely and effectively as a plasma volume expander in surgery.

The need to obtain regulatory approval to market a new product means that:

- BioTime will have to conduct expensive and time consuming clinical trials of new products.
- BioTime will incur the expense and delay inherent in seeking FDA and foreign regulatory approval of new products. For example, 12 months elapsed between the date BioTime filed an application to market Hextend and the date on which the application was approved. Approximately 36 months elapsed between the date BioTime filed an application for approval to market Hextend in Canada, and the date on which the application was approved, even though BioTime did not have to conduct any additional clinical trials. BioTime also has an application pending in Sweden to market Hextend

there. BioTime filed that application during August 2000 and BioTime responded to the latest request for information by the Swedish authorities in August 2002.

- A product that is approved may be subject to restrictions on use.
- The FDA can recall or withdraw approval of a product if problems arise.
- BioTime will face similar regulatory issues in foreign countries.

BioTime's Patents May Not Protect Its Products From Competition

BioTime has patents in the United States, Canada, the European Union countries, Australia, Israel, Russia, Hong Kong, South Africa, Japan, South Korea, and Singapore, and has filed patent applications in other foreign countries, for certain products, including Hextend, HetaCool, and PentaLyte. BioTime might not be able to obtain any additional patents, and any patents that it obtains might not be comprehensive enough to provide meaningful patent protection. Also, there will always be a risk that competitors might be able to successfully challenge the validity or enforceability of any patent issued. The costs required to uphold the validity and prevent infringement of any patent could be substantial, and BioTime might not have the resources available to defend its patent rights.

The Price and Sale of BioTime's Products May Be Limited By Health Insurance Coverage And Government Regulation

Success in selling BioTime's products may depend in part on the extent to which health insurance companies, HMOs, and government health administration authorities such as Medicare and Medicaid will pay for the cost of the products and related treatment. Presently, most health insurance plans and HMOs will pay for Hextend when it is used in a surgical procedure that is covered by the plan. However, until BioTime actually introduces a new product into the medical market place it will not know with certainty whether adequate health insurance, HMO, and government coverage will be available to permit the product to be sold at a price high enough to generate a profit. In some foreign countries, pricing or profitability of health care products is subject to government control which may result in low prices for BioTime's products. In the United States, there have been a number of federal and state proposals to implement similar government controls, and new proposals are likely to be made in the future.

Risks Pertaining to BioTime's Common Shares

Because BioTime is a Drug Development Company, The Price Of BioTime's Stock May Rise And Fall Rapidly

The market price of BioTime shares, like that of the common stock of many biotechnology companies, has been highly volatile. The price of BioTime shares may rise rapidly in response to certain events, such as the commencement of clinical trials of an experimental new drug, even though the outcome of those trials and the likelihood of ultimate FDA approval remains uncertain. Similarly, prices of BioTime shares may fall rapidly in response to certain events such as unfavorable results of clinical trials or a delay or failure to obtain FDA approval. The failure of BioTime's earnings to meet analysts' expectations could result in a significant rapid decline in the market price of BioTime's common shares. In addition, the stock market has experienced and continues to experience extreme price and volume fluctuations which have affected the market price of the equity securities of many biotechnology companies and which have often been unrelated to the operating performance of these companies. Broad market fluctuations, as well as general economic and political conditions, may adversely affect the market price of the common shares.

Because BioTime Does Not Pay Dividends, BioTime's Stock May Not Be A Suitable Investment For Anyone Who Needs To Earn Dividend Income

BioTime does not pay cash dividends on its common shares. For the foreseeable future BioTime anticipates that any earnings generated in its business will be used to finance the growth of the Company and will not be paid out as dividends to shareholders. BioTime has also agreed not to declare or pay any cash dividends on its capital stock or to redeem or repurchase any shares of its capital stock, until it has paid off its $3,350,000 of debenture indebtedness in full with interest. This means that BioTime's stock may not be a suitable investment for anyone who needs to earn income from their investments.

Item 2. Facilities.

The Company occupies its office and laboratory facility in Berkeley, California under a lease that will expire on March 31, 2004. The Company presently occupies approximately 8,890 square feet of space and pays rent in the amount of $11,355 per month. The rent will increase annually by the greater of 3% and the increase in the local consumer price index, subject to a maximum annual increase of 7%. The Company also pays all charges for utilities and garbage collection.

The Company has an option to extend the term of the lease for a period of three years, and to terminate the lease early upon six months notice.

The Company uses, on a fee per use basis, facilities for surgical research on animals at an unaffiliated privately run research center located in Winters, California. Contracting for the use of research facilities has enabled the Company to initiate its research projects without the substantial capital cost, overhead costs and delay associated with the acquisition and maintenance of a modern animal surgical research facility.

Item 3. Legal Proceedings.

The Company is not presently involved in any material litigation or proceedings, and to the Company's knowledge no such litigation or proceedings are contemplated.

Item 4. Submission of Matters to a Vote of Security Holders.

The Company held its annual meeting of shareholders on October 28, 2002. At the meeting, the shareholders elected directors and voted to approve the Company's 2002 Stock Option Plan and to ratify the appointment of the Company's independent auditors.

The following table presents the results of the vote for the election of directors.

Director	Votes For	Votes Withheld
Milton H. Dresner	11,968,619	215,723
Katherine Gordon	11,968,619	215,723
Jeffrey B. Nickel	11,915,719	268,623
Judith Segall	11,944,789	239,553
Paul Segall	11,850,609	333,733
Hal Sternberg	11,915,719	268,623
Harold Waitz	11,968,619	215,723
Michael D. West	11,968,619	215,723

There were 5,580,171 votes for the approval of the 2002 Stock Option Plan, 535,891 votes against, and 6,068,280 abstentions and broker non-votes.

There were 11,846,493 votes for the ratification of the appointment of the Company's independent auditors, 153,297 votes against, and 184,552 abstentions.

Part II

Item 5. Market for Registrant's Common Equity and Related Stockholder Matters.

The Company's Common Shares have been trading on the American Stock Exchange since August 31, 1999, and traded on the Nasdaq National Market from April 28, 1998 to August 30,1999, and on the Nasdaq SmallCap Market from March 5, 1992 through April 27, 1998. The closing price of the Company's Common Shares on the AMEX on March 27, 2003 was $1.60.

The following table sets forth the range of high and low bid prices for the Common Shares for the fiscal years ended December 31, 2001 and 2002 based on transaction data as reported by the AMEX.

Quarter Ended	High	Low
March 31, 2001	11.10	6.23
June 30, 2001	8.50	6.40
September 30, 2001	7.95	4.50
December 31, 2001	6.15	4.22
March 31, 2002	4.70	3.00
June 30, 2002	3.10	2.15
September 30, 2002	2.20	1.10
December 31, 2002	1.90	0.85

As of March 20, 2003, there were 385 shareholders of record of the Common Shares based upon information from the Registrar and Transfer Agent.

The Company has paid no dividends on its Common Shares since its inception and does not plan to pay dividends on its Common Shares in the foreseeable future. BioTime has also agreed not to declare or pay any cash dividends on its capital stock or to redeem or repurchase any shares of its capital stock, until it has paid off in full the indebtedness on certain debentures issued during August 2001. See "Management's Discussion and Analysis of Financial Condition and Results of Operations–Liquidity and Capital Resources."

Securities Authorized For Issuance Under Equity Compensation Plans

The following table shows certain information concerning the options outstanding and available for issuance under the 1992 and 2002 Stock Option Plans as of December 31, 2002. The Company had no other equity compensation plans in effect.

Equity Compensation Plan Information

Plan Category	Number of Securities to be Issued Upon Exercise of Outstanding Options (a)	Weighted-Average Exercise Price of Outstanding Options (b)	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column (a)) (c)
Equity Compensation Plans Approved by Shareholders	835,033	$ 5.38	536,668

Item 6. Selected Financial Data.

To be filed by Amendment.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

To be filed by Amendment.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

To be filed by Amendment.

Item 8. Financial Statements and Supplementary Data

To be filed by Amendment.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

Matters required to be reported under paragraph (a) of Item 304 of Regulation S-K have been previously reported. No matter described in paragraph (b) of Item 304 has occurred.

PART III

Item 10. Directors and Executive Officers of the Registrant.

Directors and Executive Officers

The names and ages of the directors and executive officers of the Company are as follows:

Paul Segall, Ph.D., 60, is the Chairman and Chief Executive Officer and has served as a director of the Company since 1990. Dr. Segall received a Ph.D. in Physiology from the University of California at Berkeley in 1977.

Hal Sternberg, Ph.D., 49, is the Vice President of Research and has been a director of the Company since 1990. Dr. Sternberg was a visiting scientist and research Associate at the University of California at Berkeley from 1985-1988, where he supervised a team of researchers studying Alzheimer's Disease. Dr. Sternberg received his Ph.D. from the University of Maryland in Biochemistry in 1982.

Harold Waitz, Ph.D., 60, is the Vice President of Engineering and Regulatory Affairs and has been a director of the Company since 1990. He received his Ph.D. in Biophysics and Medical Physics from the University of California at Berkeley in 1983.

Judith Segall, 49, is the Vice President of Technology and Secretary, and has been a director of the Company from 1990 through 1994, and from 1995 through the present date. Ms. Segall received a B.S. in Nutrition and Clinical Dietetics from the University of California at Berkeley in 1989.

Jeffrey B. Nickel, Ph.D., 59, joined the Board of Directors of the Company during March 1997. Dr. Nickel is the President of Nickel Consulting through which he has served as a consultant to companies in the pharmaceutical and biotechnology industries since 1990. Prior to starting his consulting business, Dr. Nickel served in a number of management positions for Syntex Corporation and Merck & Company. Dr. Nickel received his Ph.D. in Organic Chemistry from Rutgers University in 1970.

Milton H. Dresner, 77, joined the Board of Directors of the Company during February 1998. Mr. Dresner is a private investor and principal of Milton Dresner Investments. From 1950 until 2000 Mr. Dresner was the Co-Chairman of the Highland Companies, a diversified organization that was engaged in the development and ownership of residential and industrial real estate. Mr. Dresner serves as a director of Avatar Holdings, Inc., a real estate development company.

Katherine Gordon, Ph.D., 48, joined the Board of Directors of the Company during June 2001. Dr. Gordon is interim head of corporate development of NovaNeuron, a molecular neurobiology company. Prior to joining NovaNeuron in 2003, Dr. Gordon was Senior Vice President of MitoKor, a company discovering novel therapeutics that act by modulating the activity of mitochondria. Dr. Gordon founded neuroscience company Apollo BioPharmaceutics in 1992 and ran the company as Chief Executive Officer until its acquisition by MitoKor, Inc. in 2001. Prior to founding Apollo BioPharmaceutics, Dr. Gordon was Associate Director at Genzyme Corporation. Dr. Gordon obtained her Ph.D. from Wesleyan University in 1982 and was a post-doctoral fellow at Yale University.

Michael D. West, Ph.D., 49, joined the Board of Directors of the Company during October, 2002. Dr. West is the President and Chief Executive Officer of Advanced Cell Technology, Inc. of Worcester, Massachusetts, a company focused on the medical applications of nuclear transfer (cloning) and embryonic stem cell technologies. Dr. West founded Geron Corporation, in 1990 where he served on the board of directors and in a number of executive positions, including as Vice President of New Technologies from 1993 to 1998, and as a director from inception to 1998. Geron Corporation is engaged in the research and development of diagnostic and therapeutic products for the treatment of cancer and degenerative diseases. Dr. West organized and managed the collaboration that led to the discovery of human embryonic stem and human embryonic germ cells. He received his Ph.D. from Baylor College of Medicine in 1989 concentrating on the biology of cellular aging.

Executive Officers

Paul Segall, Hal Sternberg, Harold Waitz, Judith Segall and Steven Seinberg are the only executive officers of BioTime.

Steven A. Seinberg, J.D., 36, became Chief Financial Officer and Treasurer during August 2001. Prior to assuming these positions, Mr. Seinberg worked for over five years as BioTime's Director of Financial and Legal Research, a position that involved, among other duties, contract modifications and management of the Company's intellectual property portfolio. Mr. Seinberg received a J.D. from Hastings College of the Law in San Francisco in 1994.

There are no family relationships among the directors or officers of the Company, except that Paul Segall and Judith Segall are husband and wife.

Directors' Meetings, Compensation and Committees of the Board

The Board of Directors has an Audit Committee, the members of which are Jeffrey Nickel, Milton Dresner, and Katherine Gordon. The purpose of the Audit Committee is to recommend the engagement of the corporation's independent auditors and to review their performance, the plan, scope and results of the audit, and the fees paid to the corporation's independent auditors. The Audit Committee also will review the Company's accounting and financial reporting procedures and

controls and all transactions between the Company and its officers, directors, and shareholders who beneficially own 5% or more of the Common Shares.

The Company does not have a standing Nominating Committee. Nominees to the Board of Directors are selected by the entire Board.

The Board of Directors has a Stock Option Committee that administers the Company's 2002 Stock Option Plan and makes grants of options to key employees, consultants, scientific advisory board members and independent contractors of the Company, but not to officers or directors of the Company. The members of the Stock Option Committee are Paul Segall, Jeffrey B. Nickel, and Hal Sternberg. The Stock Option Committee was formed during September 1992.

During the fiscal year ended December 31, 2002, the Board of Directors met seven times. No director attended fewer than 75% of the meetings of the Board or any committee on which they served.

Directors did not receive cash fees during 2002. Instead, directors of the Company who are not employees received options to purchase 20,000 Common Shares exercisable at $3.00 per share, which was the closing price for BioTime stock on the American Stock Exchange on the last day of March, 2002. Of the 20,000 options granted, 12,500 were fully vested and exercisable upon grant and the remaining 7500 options vested and became exercisable in nine equal monthly installments based on continued service on the Board of Directors. Mr. West, who became a director during October 2002, received 3,332 options, as a pro rata share of the 20,000 options granted to other directors, and an additional option to purchase 15,000 Common Shares at $1.00 per share, which was the closing price on the AMEX on the date of grant. Directors of the Company and members of committees of the Board of Directors who are employees of the Company are not compensated for serving as directors or attending meetings of the Board or committees of the Board. Directors are entitled to reimbursements for their out-of-pocket expenses incurred in attending meetings of the Board or committees of the Board. Directors who are employees of the Company are also entitled to receive compensation in such capacity.

Executive Compensation

The Company had five-year employment agreements with Paul Segall, Chairman and Chief Executive Officer; Judith Segall, Vice President of Technology and Corporate Secretary; Hal Sternberg, Vice President of Research; and Harold Waitz, Vice President of Engineering and Regulatory Affairs that expired on December 31, 2000 and were renewed for a one-year term that ended on December 31, 2001. The Company also had an employment agreement with Ronald S. Barkin, President, that expired on March 31, 2002. Mr. Barkin retired as President after the expiration of his employment agreement. The executive officers were entitled to receive annual salaries of $163,000 for the year ended December 31, 2001, but in July, 2001 Drs. Segall, Sternberg and Waitz and Judith Segall agreed to participate in the Company's voluntary salary reduction program. Since these voluntary salary reductions went into effect, Dr. Segall has received a salary of $3,000 per month and Drs. Sternberg and Waitz and Judith Segall have each received a salary of $6,000 per month.

Each executive officer has also executed an Intellectual Property Agreement which provides that the Company is the owner of all inventions developed by the executive officer during the course of his or her employment.

The following table summarizes certain information concerning the compensation paid to the Chief Executive Officer during the past three fiscal years. No other executive officer earned more than $100,000 during 2002.

SUMMARY COMPENSATION TABLE

		Annual Compensation		Long-Term Compensation	
Name and Principal Position	Year Ended	Salary($)	Bonus	Stock Options	
		(Shares)			
Paul Segall	December 31, 2002	$ 36,000	—	125,000	
Chairman and Chief Executive Officer	December 31, 2001	$101,792	—	—	
	December 31, 2000	$163,000	—	—	

Insider Participation in Compensation Decisions

The Board of Directors does not have a standing Compensation Committee. Instead, the Board of Directors as a whole and the Audit Committee approve all executive compensation. All of the executive officers of the Company serve on the Board of Directors but do not vote on matters pertaining to their own personal compensation. Paul Segall and Judith Segall do not vote on matters pertaining to each other's compensation. None of the members of the Audit Committee are employees of the Company.

Stock Options

The following table certain information concerning stock options granted to the Company's Chief Executive Officer during 2002:.

Aggregated Options Exercised in Last Fiscal Year, and Fiscal Year-End Option Values

Name	Number of Shares Acquired on Exercise	Value Realized ($)	Number of Unexercised Options at December 31, 2002		Value of Unexercised In-the-Money Options at December 31, 2002	
			Exercisable	Unexercisable	Exercisable	Unexercisable
Paul Segall	—	—	41,666	83,334	—	—

Certain Relationships and Related Transactions

During September 1995, the Company entered into an agreement for financial advisory services with Greenbelt Corp. ("Greenbelt"), a corporation controlled by Alfred D. Kingsley and Gary K. Duberstein, who are also shareholders of the Company. Under this agreement the Company issued to the financial advisor warrants to purchase 311,276 Common Shares at a price of $1.93 per share, and the Company agreed to issue additional warrants to purchase up to an additional 622,549 Common Shares at a price equal to the greater of (a) 150% of the average market price of the Common Shares during the three months prior to issuance and (b) $2 per share. The additional warrants were issued in equal quarterly installments over a two year period, beginning October 15, 1995.

The number of shares and exercise prices shown have been adjusted for the Company's subscription rights distributions during January 1997 and February 1999 and the payment of a stock dividend during October 1997. Greenbelt has purchased 544,730 Common Shares by exercising some of those warrants at prices ranging from $1.93 to $2.35 per share. The other warrants have expired unexercised.

During April 1998, the Company entered into a new financial advisory services agreement with Greenbelt. The new agreement provided for an initial payment of $90,000 followed by an advisory fee of $15,000 per month paid quarterly. The Company agreed to reimburse Greenbelt for all reasonable out-of-pocket expenses incurred in connection with its engagement as financial advisor, and to indemnify Greenbelt and its officers, affiliates, employees, agents, assignees, and controlling person from any liabilities arising out of or in connection with actions taken on BioTime's behalf under the agreement. The agreement has been renewed each year and will expire on March 31, 2003. The Company agreed to issue Greenbelt 30,000 Common Shares in four quarterly installments of 7,500 shares each for the twelve months ended March 31, 2001, 40,000 Common Shares in four quarterly installments of 10,000 each for the twelve months ended March 31, 2002, and $60,000 in cash and 100,000 Common Shares for the twelve months ending March 31, 2003.

During March 2001, the Company entered into a Line of Credit Agreement with Alfred D. Kingsley under which Mr. Kingsley agreed to lend the Company $1,000,000. In consideration of Mr. Kingsley's agreement to provide that line of credit, the Company issued to him a warrant to purchase 50,000 Common Shares at an exercise price of $8.31 per share. The warrant will expire in five years. The exercise price and number of Common Shares for which the warrant may be

exercised are subject to adjustment to prevent dilution in the event of a stock split, combination, stock dividend, reclassification of shares, sale of assets, merger or similar transaction.

During August 2001, the Company received loans of $3,350,000 through the sale of debentures to a group of private investors, including Mr. Kingsley, who purchased $1,500,000 of debentures, and Milton Dresner, a director of the Company. Mr. Kingsley's investment included the conversion of the $1,000,000 principal balance of the line of credit that he had previously provided.

Interest on the debentures is payable at an annual rate of 10% and is payable semiannually. The principal amount of the debentures will be due and payable on August 1, 2004. BioTime may prepay the debentures, in whole or in part, at any time without premium or penalty. Under the terms of the debentures, BioTime has agreed that commencing October 1, 2001 it will restrict its quarterly cash payments for operating expenses to not more than $450,000 (excluding interest payable on the debentures) plus the amount of cash revenues (excluding interest and dividends) it collects for the quarter. To the extent BioTime's expenditures during any quarter are less than $450,000 over its revenues, it may expend the difference in one or more subsequent quarters. That restriction will expire when BioTime obtains at least $5,000,000 in cash through sales of equity securities or pays off the debenture indebtedness in full. For this purpose, cash revenues will include royalties, license fees, and other proceeds from the sale or licensing of its products and technology, but will not include interest, dividends, and any monies borrowed or the proceeds from the issue or sale of any debt or equity securities. BioTime has also agreed not to declare or pay any cash dividends on its capital stock or to redeem or repurchase any shares of its capital stock, until it has paid off the debenture indebtedness in full.

Investors who purchased the debentures also received warrants to purchase a total of 515,383 common shares at an exercise price of $6.50 per share. The warrants will expire if not exercised by August 1, 2004. The Company has the right to call the warrants for redemption at a redemption price of $0.01 per share if the closing price of the Company's Common Shares on the American Stock Exchange equals or exceeds 150% of the exercise price for fifteen (15) consecutive trading days and the shares issuable upon the exercise of the warrants have been registered for sale under the Securities Act of 1933, as amended (the "Act").

During March 2002, the Company entered into a new Credit Agreement with Alfred D. Kingsley for a $300,000 line of credit. In consideration of Mr. Kingsley's agreement to provide that line of credit, the Company issued to him a warrant to purchase 30,000 Common Shares at an exercise price of $4.00 per share. The warrant will expire in five years. The exercise price and number of Common Shares for which the warrant may be exercised are subject to adjustment to prevent dilution in the event of a stock split, combination, stock dividend, reclassification of shares, sale of assets, merger, or similar transaction.

During August 2002, Mr. Kingsley purchased 89,285 Common Shares, and Jeffrey Nickel purchased 10,000 Common Shares, from the Company at the same price and on the same terms as shares sold to other investors in a private placement.

The Company has registered for sale under the Act, the warrants and Common Shares described above, including Common Shares that may be issued upon the exercise of the warrants or in installments under the financial advisory agreement, other than the shares issuable under the

current financial advisory agreement which may be registered at a later date. The Company also included in the registration 300,000 Common Shares that Mr. Kingsley acquired during December 2000 from certain BioTime officers and directors. The Company pays the expenses of registration, but will not be obligated to pay any underwriting discounts or commissions that may be incurred by Greenbelt, Mr. Kingsley, Mr. Dresner, or Mr. Nickel in connection with any sale of the warrants or Common Shares.

On July 3, 2002 Paul Segall and Harold Waitz each sold 200,000 common shares to Mr. Kingsley at a price of $2.00 per share to eliminate margin indebtedness. Also on July 3, 2002, Mr. Kingsley made unsecured loans in the amounts of $220,000 to Dr. Segall and $252,000 to Dr. Waitz.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

The following table sets forth information as of March 1, 2003 concerning beneficial ownership of Common Shares by each shareholder known by the Company to be the beneficial owner of 5% or more of the Company's Common Shares, and the Company's executive officers and directors. Information concerning certain beneficial owners of more than 5% of the Common Shares is based upon information disclosed by such owners in their reports on Schedule 13D or Schedule 13G.

	Number of Shares	Percent of Total
Alfred D. Kingsley (1)		
Gary K. Duberstein		
Greenbelt Corp.		
Greenway Partners, L.P.		
Greenhouse Partners, L.P.		
909 Third Avenue, 30th Floor		
New York, New York 10022	3,075,583	22.1%
Paul and Judith Segall (2)	482,076	3.5%
Harold D. Waitz (3)	177,500	1.3%
Hal Sternberg (4)	274,907	2.0%
Steven A. Seinberg (5)	34,320	*
Jeffrey B. Nickel (6)	60,000	*
Milton H. Dresner (7)	90,998	*
Katherine Gordon (8)	35,000	*
Michael D. West (9)	18,332	*

All officers and directors as a group (9 persons) (10)	1,173,133	8.4%

* Less than 1%

(1) Includes 774,460 Common Shares owned by Greenbelt Corp., 90,750 Common Shares owned by Greenway Partners, L.P., 1,888,709 Common Shares owned solely by Alfred D. Kingsley, 310,769 Common Shares issuable upon the exercise of certain warrants owned solely by Mr. Kingsley, and 10,895 Common Shares owned solely by Gary K. Duberstein. Alfred D. Kingsley and Gary K. Duberstein control Greenbelt Corp. and may be deemed to beneficially own the warrants and shares that Greenbelt Corp. beneficially owns. Greenhouse Partners, L.P. is the general partner of Greenway Partners, L.P., and Mr. Kingsley and Mr. Duberstein are the general partners of Greenhouse Partners, L.P. Greenhouse Partners, L.P., Mr. Kingsley, and Mr. Duberstein may be deemed to beneficially own the shares that Greenway Partners, L.P. owns. Mr. Duberstein disclaims beneficial ownership of the shares and warrants owned solely by Mr. Kingsley, and Mr. Kingsley disclaims beneficial ownership of the shares owned solely by Mr. Duberstein.

(2) Includes 143,245 shares held of record by Paul Segall and 202,163 shares held of record by Judith Segall, and 83,334 shares that may be acquired by Paul Segall upon the exercise of certain stock options, and 53,334 shares that may be acquired by Judith Segall upon the exercise of certain stock options. Does not include certain options that are not exercisable until January 1, 2004.

(3) Includes 2,100 shares held for the benefit of Dr. Waitz's minor children and 53,334 shares that may be acquired by Dr. Waitz upon the exercise of certain stock options. Does not include certain options that are not exercisable until January 1, 2004.

(4) Includes 60,000 shares issuable upon the exercise of certain options. Does not include certain options that are not exercisable until January 1, 2004.

(5) Includes 34,320 shares issuable upon the exercise of certain options. Does not include certain options that are not exercisable until January 1, 2004.

(6) Includes 50,000 shares issuable upon the exercise of certain options.

(7) Includes 50,000 shares issuable upon the exercise of certain stock options, and 15,384 shares issuable upon the exercise of certain warrants.

(8) Includes 35,000 shares issuable upon the exercise of certain options.

(9) Includes 18,332 shares issuable upon the exercise of certain options.

(10) Includes 453,038 shares issuable upon the exercise of certain options and warrants. Does not include certain options that are not exercisable until January 1, 2004.

COMPLIANCE WITH SECTION 16(a) OF THE SECURITIES EXCHANGE ACT OF 1934

Section 16(a) of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), requires the Company's directors and executive officers and persons who own more than ten percent (10%) of a registered class of the Company's equity securities to file with the Securities and Exchange Commission (the "SEC") initial reports of ownership and reports of changes in ownership of Common Shares and other equity securities of the Company. Officers, directors and greater than ten percent beneficial owners are required by SEC regulation to furnish the Company with copies of all reports they file under Section 16(a).

To the Company's knowledge, based solely on its review of the copies of such reports furnished to the Company and written representations that no other reports were required, all Section 16(a) filing requirements applicable to its officers, directors and greater than ten percent beneficial owners were complied with during the fiscal year ended December 31, 2002.

Item 14. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

The Company's management, including its principal executive officer and its principal financial officer, have reviewed and evaluated the Company's disclosure controls and procedures as of a date within ninety (90) days of the filing date of this Form 10-K annual report. Following this review and evaluation, management has collectively determined that the Company's disclosure controls and procedures are sufficient to ensure that material information relating to the Company with respect to the period covered by this report was made known to them.

However, management has also concluded that certain aspects of its accounting and reporting functions could be improved. While management believes that this deficiency is not material, management has committed itself to take action to improve its internal control structure.

Changes in Internal Controls

There were no significant changes to the Company's internal controls or in other factors that could significantly affect these controls subsequent to the date of the review by the Chief Executive Officer and Chief Financial Officer.

Following the review and evaluation of the Company's disclosure controls and procedures, management has committed itself to take several steps that it feels are necessary to strengthen its accounting and reporting function, including improvement of the capabilities of its accounting personnel, adoption of more frequent internal reviews and reconciliations of financial information, and improvement of the Company's budgeting process. The Company has acquired new accounting software that it believes will facilitate implementation of accounting reviews and reconciliations and budgeting.

PART IV

Item 15. Exhibits, Financial Statement Schedules and Reports on Form 8-K

(a-1) Financial Statements.

The following financial statements of BioTime, Inc. will be Filed by Amendment.

Notes to Financial Statements

(a-2) Financial Statement Schedules

All schedules are omitted because the required information is inapplicable or the information is presented in the financial statements or the notes thereto.

(a-3) Exhibits.

Exhibit Numbers	Description
3.1	Articles of Incorporation, as Amended.†
3.3	By-Laws, As Amended.#
4.1	Specimen of Common Share Certificate.+
10.1	Lease Agreement dated July 1, 1994 between the Registrant and Robert and Norah Brower, relating to principal executive offices of the Registrant.*
10.2	Intellectual Property Agreement between the Company and Paul Segall.+
10.3	Intellectual Property Agreement between the Company and Hal Sternberg.+
10.4	Intellectual Property Agreement between the Company and Harold Waitz.+
10.5	Intellectual Property Agreement between the Company and Judith Segall.+
10.6	Intellectual Property Agreement between the Company and Steven Seinberg.**
10.7	Agreement between CMSI and BioTime Officers Releasing Employment Agreements, Selling Shares, and Transferring Non-Exclusive License.+
10.8	Agreement for Trans Time, Inc. to Exchange CMSI Common Stock for BioTime, Inc. Common Shares.+
10.9	2002 Stock Option Plan, as amended.##
10.10	Addenda to Lease Agreement between the Company and Donn Logan.‡
10.11	Exclusive License Agreement between Abbott Laboratories and BioTime, Inc. (Portions of this exhibit have been omitted pursuant to a request for confidential treatment).###

10.12	Modification of Exclusive License Agreement between Abbott Laboratories and BioTime, Inc. (Portions of this exhibit have been omitted pursuant to a request for confidential treatment).^^^
10.13	Revolving Line of Credit Agreement, dated March 27, 2001, between BioTime, Inc. and Alfred D. Kingsley††
10.14	Warrant Agreement, dated March 27, 2001, between BioTime, Inc. and Alfred D. Kingsley††
10.15	Form of Series 2001-A 10% Debenture due August 1, 2004‡‡
10.16	Warrant Agreement between BioTime, Inc. and Purchasers of Series 2001-A Debentures‡‡
10.17	Revolving Line of Credit Agreement, dated March 27, 2002, between BioTime, Inc. and Alfred D. Kingsley####
10.18	Warrant Agreement, dated March 27, 2002, between BioTime, Inc. and Alfred D. Kingsley####
10.19	Warrant for the Purchase of Common Shares, dated August 12, 2002, issued to Ladenburg Thalmann & Co. Inc.***
10.20	Exclusive License Agreement between BioTime, Inc. and CJ Corp.****
23.1	Consent of Deloitte & Touche LLP^^^^
23.2	Consent of BDO Seidman LLP^^^^
99.1	Certification Pursuant to 18 U.S.C. Section 1350.^^^^

†Incorporated by reference to the Company's Form 10-K for the fiscal year ended June 30, 1998.

+ Incorporated by reference to Registration Statement on Form S-1, File Number 33-44549 filed with the Securities and Exchange Commission on December 18, 1991, and Amendment No. 1 and Amendment No. 2 thereto filed with the Securities and Exchange Commission on February 6, 1992 and March 7, 1992, respectively.

Incorporated by reference to Registration Statement on Form S-1, File Number 33-48717 and Post-Effective Amendment No. 1 thereto filed with the Securities and Exchange Commission on June 22, 1992, and August 27, 1992, respectively.

* Incorporated by reference to the Company's Form 10-K for the fiscal year ended June 30, 1994.

^ Incorporated by reference to the Company's Form 10-Q for the quarter ended March 31, 1997.

Incorporated by reference to Registration Statement on Form S-8, File Number 333-101651 filed with the Securities and Exchange Commission on December 4, 2002.

^ ^ Incorporated by reference to the Company's Form 10-Q for the quarter ended March 31, 1999.

Incorporated by reference to the Company's Form 8-K, filed April 24, 1997.

^^^ Incorporated by reference to the Company's Form 10-Q for the quarter ended June 30, 1999.

‡ Incorporated by reference to the Company's Form 10-K for the year ended December 31, 1999.

†† Incorporated by reference to the Company's Form 10-K for the year ended December 31, 2000.

‡‡ Incorporated by reference to the Company's Form 10-Q for the quarter ended June 30, 2001.

** Incorporated by reference to the Company's Form 10-K for the year ended December 31, 2001.

*** Incorporated by reference to the Company's Form 10-Q for the quarter ended June 30, 2002.

**** Filed herewith.

^^^^ To be filed by Amendment.

(b) Reports on Form 8-K

The Company did not file any reports of Form 8-K for the three months ended December 31, 2002.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the Registrant has duly caused this report on Form 10-K to be signed on its behalf by the undersigned, thereunto duly authorized on the 31st day of March 2003.

BIOTIME, INC.

By: /s/Paul Segall

Paul Segall, Ph.D.
Chairman and Chief Executive Officer (Principal executive officer)

Signature	Title	Date
/s/Paul E. Segall Paul E. Segall, Ph.D.	Chairman, Chief Executive Officer and Director (Principal Executive Officer)	March 31, 2003
/s/Harold D. Waitz Harold D. Waitz, Ph.D.	Vice President and Director	March 31, 2003
/s/Hal Sternberg Hal Sternberg, Ph.D.	Vice President and Director	March 31, 2003
/s/Steven Seinberg Steven Seinberg	Chief Financial Officer (Principal Financial and Accounting Officer)	March 31, 2003
/s/Judith Segall Judith Segall	Vice President, Corporate Secretary and Director	March 31, 2003
/s/Jeffrey B. Nickel Jeffrey B. Nickel	Director	March 31, 2003
Milton H. Dresner	Director	March , 2003
Katherine Gordon	Director	March , 2003
Michael D. West	Director	March , 2003

Certifications

I, Paul Segall , certify that:

1. I have reviewed this annual report on Form 10-K of BioTime, Inc.;

2. Based on my knowledge, this annual report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this annual report;

3. Based on my knowledge, the financial statements, and other financial information included in this annual report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this annual report;

4. The registrant's other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-14 and 15d-14) for the registrant and we have:

a) designed such disclosure controls and procedures to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this annual report is being prepared;

b) evaluated the effectiveness of the registrant's disclosure controls and procedures as of a date within 90 days prior to the filing date of this annual report (the "Evaluation Date"); and

c) presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures based on our evaluation as of the Evaluation Date;

5. The registrant's other certifying officers and I have disclosed, based on our most recent evaluation, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent function);

a) all significant deficiencies in the design or operation of internal controls which could adversely affect the registrant's ability to record, process, summarize and report financial data and have identified for the registrant's auditors any material weakness in internal controls; and

b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal controls; and

6. The registrant's other certifying officers and I have indicated in this annual report whether or not there were significant changes in internal controls or in other factors that could significantly affect internal controls subsequent to the date of our most recent evaluation, including any corrective actions with regard to significant deficiencies and material weaknesses.

Date: March 31, 2003

/s/ Paul Segall

Paul Segall, Ph.D.
Chairman and Chief Executive Officer

Certifications

I, Steven A. Seinberg , certify that:

1. I have reviewed this annual report on Form 10-K of BioTime, Inc.;

2. Based on my knowledge, this annual report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this annual report;

3. Based on my knowledge, the financial statements, and other financial information included in this annual report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this annual report;

4. The registrant's other certifying officers and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-14 and 15d-14) for the registrant and we have:

a) designed such disclosure controls and procedures to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this annual report is being prepared;

b) evaluated the effectiveness of the registrant's disclosure controls and procedures as of a date within 90 days prior to the filing date of this annual report (the "Evaluation Date"); and

c) presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures based on our evaluation as of the Evaluation Date;

5. The registrant's other certifying officers and I have disclosed, based on our most recent evaluation, to the registrant's auditors and the audit committee of registrant's board of directors (or persons performing the equivalent function); a) all significant deficiencies in the design or operation of internal controls which could adversely affect the registrant's ability to record, process, summarize and report financial data and have identified for the registrant's auditors any material weakness in internal controls; and

b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal controls; and

6. The registrant's other certifying officers and I have indicated in this annual report whether or not there were significant changes in internal controls or in other factors that could significantly affect internal controls subsequent to the date of our most recent evaluation, including any corrective actions with regard to significant deficiencies and material weaknesses.

Date: March 31, 2003

/s/ Steven A. Seinberg

Steven A. Seinberg
Chief Financial Officer

EXHIBIT INDEX

Exhibit Numbers	Description
3.1	Articles of Incorporation, as Amended.†
3.3	By-Laws, As Amended.#
4.1	Specimen of Common Share Certificate.+
10.1	Lease Agreement dated July 1, 1994 between the Registrant and Robert and Norah Brower, relating to principal executive offices of the Registrant.*
10.2	Intellectual Property Agreement between the Company and Paul Segall.+
10.3	Intellectual Property Agreement between the Company and Hal Sternberg.+
10.4	Intellectual Property Agreement between the Company and Harold Waitz.+
10.5	Intellectual Property Agreement between the Company and Judith Segall.+
10.6	Intellectual Property Agreement between the Company and Steven Seinberg.**
10.7	Agreement between CMSI and BioTime Officers Releasing Employment Agreements, Selling Shares, and Transferring Non-Exclusive License.+
10.8	Agreement for Trans Time, Inc. to Exchange CMSI Common Stock for BioTime, Inc. Common Shares.+
10.9	2002 Stock Option Plan, as amended.##
10.10	Addenda to Lease Agreement between the Company and Donn Logan.‡
10.11	Exclusive License Agreement between Abbott Laboratories and BioTime, Inc. (Portions of this exhibit have been omitted pursuant to a request for confidential treatment).###
10.12	Modification of Exclusive License Agreement between Abbott Laboratories and BioTime, Inc. (Portions of this exhibit have been omitted pursuant to a request for confidential treatment).^^^
10.13	Revolving Line of Credit Agreement, dated March 27, 2001, between BioTime, Inc. and Alfred D. Kingsley††
10.14	Warrant Agreement, dated March 27, 2001, between BioTime, Inc. and Alfred D. Kingsley††
10.15	Form of Series 2001-A 10% Debenture due August 1, 2004‡‡
10.16	Warrant Agreement between BioTime, Inc. and Purchasers of Series 2001-A Debentures‡‡
10.17	Revolving Line of Credit Agreement, dated March 27, 2002, between BioTime, Inc. and Alfred D. Kingsley####
10.18	Warrant Agreement, dated March 27, 2002, between BioTime, Inc. and Alfred D. Kingsley####
10.19	Warrant for the Purchase of Common Shares, dated August 12, 2002, issued to Ladenburg Thalmann & Co. Inc.***

10.20	Exclusive License Agreement between BioTime, Inc. and CJ Corp.****
23.1	Consent of Deloitte & Touche LLP^^^^
23.2	Consent of BDO Seidman LLP^^^^
99.1	Certification Pursuant to 18 U.S.C. Section 1350.^^^^

†Incorporated by reference to the Company's Form 10-K for the fiscal year ended June 30, 1998.

+ Incorporated by reference to Registration Statement on Form S-1, File Number 33-44549 filed with the Securities and Exchange Commission on December 18, 1991, and Amendment No. 1 and Amendment No. 2 thereto filed with the Securities and Exchange Commission on February 6, 1992 and March 7, 1992, respectively.

Incorporated by reference to Registration Statement on Form S-1, File Number 33-48717 and Post-Effective Amendment No. 1 thereto filed with the Securities and Exchange Commission on June 22, 1992, and August 27, 1992, respectively.

* Incorporated by reference to the Company's Form 10-K for the fiscal year ended June 30, 1994.

^ Incorporated by reference to the Company's Form 10-Q for the quarter ended March 31, 1997.

Incorporated by reference to Registration Statement on Form S-8, File Number 333-101651 filed with the Securities and Exchange Commission on December 4, 2002.

^ ^ Incorporated by reference to the Company's Form 10-Q for the quarter ended March 31, 1999.

Incorporated by reference to the Company's Form 8-K, filed April 24, 1997.

^^^ Incorporated by reference to the Company's Form 10-Q for the quarter ended June 30, 1999.

‡ Incorporated by reference to the Company's Form 10-K for the year ended December 31, 1999.

†† Incorporated by reference to the Company's Form 10-K for the year ended December 31, 2000.

‡‡ Incorporated by reference to the Company's Form 10-Q for the quarter ended June 30, 2001.

** Incorporated by reference to the Company's Form 10-K for the year ended December 31, 2001.

*** Incorporated by reference to the Company's Form 10-Q for the quarter ended June 30, 2002.

**** Filed herewith.

^^^^ To be filed by Amendment.

Exhibit 10.20

EXCLUSIVE LICENSE AGREEMENT
Between BioTime, Inc. and CJ Corp.

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EXCLUSIVE LICENSE AGREEMENT

This Agreement is made as of March 27, 2003 by and between BioTime, Inc. ("Licensor") and CJ Corp.("CJ").

Premises

This Agreement defines the terms to which CJ and Licensor agree that CJ will manufacture, market, and sell certain intravenous solutions in the Republic of Korea (the "Territory").

1. Definitions

Where used in this Agreement the following terms shall have the meanings ascribed below:

(a) "Affiliate" means any entity controlled by, in control of, under common control with CJ or Licensor.

(b) "Confidential Information" means any information including, but not limited to, ideas, proposals, plans, Know-How, reports, drawings, designs, data, discoveries, inventions, improvements, suggestions, specifications, products, samples, components and materials relating to a Product or New Product, and all information relating to the manufacture, formulation, analysis, stability, pharmacology, toxicology, pathology, clinical data, results of clinical efficacy studies, clinical effects and indications for use of a Product or New Product which a party discloses to the other party, except any portion thereof which:

(i) is known to the receiving party at the time of disclosure and documented by written records made prior to the date of this Agreement;

(ii) is disclosed to the receiving party by a Third Person who has a right to make such disclosure;

(iii) becomes patented, published or otherwise part of the public domain as a result of acts by a Third Person through no fault of the receiving party or its Subsidiary or other Affiliate of the receiving party; or

(iv) is independently developed by the receiving party without the use of Confidential Information, as evidenced by its written records.

(c) "Exclusive License" means a license whereby CJ's rights shall be sole and exclusive and shall operate to exclude all others, including Licensor.

(d) "Know-How" means that proprietary technology developed by Licensor for manufacturing or formulating a Product or New Product, including, but not limited to: manufacturing data; formulation or production technology; methods of synthesis, isolation and purification methods and other manufacturing information required to manufacture a Product or New Product; and that proprietary data developed by Licensor related to pharmacology, toxicology, pathology, clinical data, results of clinical efficacy studies, clinical effects and indications for use of a Product or New Product.

(e) "Licensed Patents" means: (i) the patents and patent applications listed in Schedule III hereto; (ii) all patents arising from applications identified in (i) and any divisions, continuations and continuations-in-part defined in (i); (iii) any extension, renewal or reissue of a patent identified in (i) or (ii); and (iv) any continuation or divisional of any licensed patent application and any reissue or reexamination of any patent identified in (i) through (iii).

(f) "Licensed Trademark" means Hextend(R) and PentaLyte(R), and any other trademark developed, acquired or licensed by Licensor for use in connection with the sale of the Products in the Territory

.(g) "New Products" means the pharmaceutical product for human use generally described in Schedule II and identified by Licensor as HetaCool and HetaFreeze. "New Product" also includes any and all improved versions or formulations of a New Product made by Licensor which (i) comprise a single oncotic agent selected from High or Medium Molecular Weight hydroxyethyl starch (ii) have pharmacologic profiles and therapeutic indications normally considered medically equivalent to the New Product by specialists in the indications allowed, (iii) are designed for use below 12E Centigrade, and (iv) are covered

by a Licensed Patent, by a Licensed Trademark, or by Licensed Proprietary Technology.

(h) "Products" means the pharmaceutical product for human use generally described in Schedule I and identified by Licensor as Hextend and PentaLyte. "Product" also includes any and all improved versions or formulations of a Product made by Licensor which (i) comprise a single oncotic agent selected from High or Medium Molecular Weight hydroxyethyl starch, (ii) have pharmacologic profiles and therapeutic indications normally considered medically equivalent to the Product by specialists in the indications allowed, (iii) are designed for use above 12ECentigrade, and (iv) are covered by a Licensed Patent, by a Licensed Trademark, or by Licensed Proprietary Technology.

(i) "Proprietary Rights" means all of Licensor's property rights (except Licensed Patents and Licensed Trademarks) and interests in, to, or covering a Product, or the manufacture or use of a Product, to the extent that such property rights and interests are of such legal status and nature as to permit the same to be lawfully licensed and, without limiting the generality thereof, specifically include unpatented inventions, ideas, data, Know-How, technology, trade secrets and Confidential Information.

(j) "Subsidiary" means a corporation, a limited liability company, or any other entity that is wholly owned by CJ or Licensor, either directly or through one or more other such entities that are wholly owned by CJ or Licensor.

(k) "Territory" means the Republic of Korea.

(l) "Third Person" means any natural person, corporation, partnership, limited partnership, limited liability company, trust, association or other entity other than CJ, a Subsidiary, an Affiliate, or Licensor.

(m) "Unit" means 500 milliliters of a Product.

2. License Grant

(a) Licensor hereby grants to CJ an Exclusive License to use Licensed Patents, Licensed Trademarks, and Proprietary Rights to manufacture and sell the Products in the Territory only for human therapeutic use at temperatures above 12E Centigrade. Such license shall be irrevocable, except as hereinafter expressly provided.

(b) CJ shall not sublicense or assign to any Third Person any Licensed Patents, Licensed Trademarks, and Proprietary Rights, or any other rights granted by Licensor under this Agreement.

(c) CJ agrees not to use or permit any Subsidiary to use any Licensed Patents, Licensed Trademarks, and Proprietary Rights for any use other than the manufacture and sale of the Products in the Territory. CJ will not sell and will not permit any Subsidiary or Affiliate to sell the Products outside the Territory. If any Product is sold (by CJ or any of its Subsidiaries) to a Third Person that intends to resell the Products, CJ will require such Third Person to agree not to resell the Products outside the Territory. If CJ or any of its Subsidiaries or other Affiliates becomes informed of a violation of that agreement by the Third Person, CJ will notify Licensor of such violation, and CJ will take reasonable means to enforce the Third Person's agreement, including by discontinuing sales to such Third Person if the sales outside the Territory compete with sales made by Licensor or any of Licensor's licensees.

(d) CJ agrees that it, its Subsidiaries, and other Affiliates will not challenge or contest the validity of any Licensed Patent or any claim under any Licensed Patent, or Licensor's ownership of Proprietary Rights, or Licensor's ownership or registration of any Licensed Trademark.

(e) Licensor retains (i) the rights under Licensed Patents, Proprietary Rights, and Licensed Trademarks for research, development and clinical testing of new and improved products, technology, and additional therapeutic indications of the Products inside and outside the Territory; (ii) all rights to Licensed Patents, Proprietary Rights, Licensed Trademarks, and the Products for any purpose outside the Territory, including but not limited to the right to sell, assign, transfer and license to Third Parties, and the right to make, have made, use, and sell the Products outside the Territory; and (iii) all rights to Licensed Patents, Proprietary Rights, and Licensed Trademarks, for

the purpose of manufacturing, using, and selling new products inside the Territory, and the right to sell, assign, transfer and license such rights to Third Parties, with respect to any new products which are not subject to the Exclusive License under this Agreement.

3. License Fees

In partial consideration for Exclusive License granted to CJ hereunder, CJ agrees to pay Licensor the License Fees as follows: (a) Five Hundred Thousand Dollars ($500,000) within thirty (30) days after the signing of this Agreement, and (b) Three Hundred Thousand Dollars ($300,000) within thirty (30) days after application for regulatory approval required to manufacture and market for Hextend(R) in the Territory; provided however, that if Licensor discontinues the development of PentaLyte(R), then Licensor shall grant to CJ a license fee-free Exclusive License to use Licensed Patents, Licensed Trademarks, and Proprietary Rights to manufacture and sell the one of New Products which can be marketed instead of PentaLyte(R) in the Territory, subject to the payment of royalties under Section 4.

4. Royalties

(a) CJ agrees to pay to Licensor royalties in the amount of Two Dollars ($2.00) per Unit of Products sold in the Territory ; provided, however, that the Products sold in the Territory shall exclude any returned Products. The foregoing amount of royalties shall be adjusted to an amount of (a) One Dollar and thirty Cents ($1.30) per Unit if the price of the National Health Insurance ("NHI") for the Products in the Territory is less than forty five thousand Korean Won (KRW 45,000) and (b) Two Dollars and sixty Cents ($2.60) per Unit, if the price of the NHI for the Products in the Territory is more than ninety thousand Korean Won (KRW 90,000).

(b) CJ agrees to use its best efforts, including its extensive sales, marketing and distribution programs and facilities to promote, market, distribute and sell the Products in the Territory in a manner consistent with the manner and standards used by leading companies in the industry in the Territory to promote, market, distribute and sell leading products, and at prices and on other terms of sale reasonably expected to maximize sales of the Products. If CJ assigns or sublicenses any of its rights under this Agreement to a Subsidiary or an Affiliate , CJ shall require such Subsidiary or an Affiliate to promote, market, distribute and sell the Products as provided in the immediately preceding sentence. Without limiting the generality of the first sentence of this paragraph, CJ agrees to: (i) conduct marketing studies and to consult with Licensor in connection with the design, scope and method of conducting such studies; and (ii) provide all technical and medical product support necessary to commence and maintain sales and marketing of the Products.

(c) All sales of the Products by CJ or any Subsidiary or Affiliate shall be documented by invoices showing the quantity sold in Units.

5. Royalty and License Payments

(a) Royalty Payment Report. Each royalty payment shall be accompanied by a statement which sets forth the quantity of Product in Units.

(b) Royalty Payments.

Royalty payments shall be made within thirty (30) days after the last day of each quarter period ending on March 31, June 30, September 30 and December 31, respectively.

(c) Currency; Exchange Rates. All royalties and license fees shall be paid in United States dollars. For the purpose of determining royalties, Korean won shall be converted to United States dollars at the exchange rate prevailing at the close of the last business day of the week immediately preceding the date on which royalties or license fees are paid. The exchange rates used for such conversion shall be those set forth by The Bank of Korea.

(d) Royalty and License Fee Payments - - Place and Tax. Payments due under this Agreement shall be made by wire transfer to an account of Licensor at a bank designated by Licensor. CJ, its Subsidiaries, or other Affiliate shall use their best efforts to convert the royalties payable on sales to United States

dollars; provided, however, that if conversion to and transfer of United States dollars cannot be made in the Territory for any reason, payment of royalties may be made in the currency of the Territory, and deposited in an account in Licensor's name in a bank designated by Licensor in the Territory. Any tax which CJ is required to pay or withhold with respect to money payable to Licensor hereunder shall be deducted from the amount of such money otherwise due, provided, however, that in regard to any such deduction CJ shall give Licensor such assistance as may reasonable be necessary to enable or assist Licensor to claim exemption therefrom and shall give Licensor proper evidence from time to time as to the payment of the tax.

(e) No Royalties Payable Between Affiliates. No royalties shall be payable on sales among CJ and its Subsidiaries, or Affiliates, or between Subsidiaries and Affiliates, provided that CJ and its Subsidiaries and Affiliates resell to Third Persons the quantities of the Products in question.

(f) Records and Audit. CJ, its Affiliates and Subsidiaries shall keep and maintain records of Product sales, hydroxyethyl starch purchases, Product production, and Product inventory, with respect to each and every Product, during the term of this Agreement. CJ shall also require each supplier of hydroxyethyl starch used by CJ in the manufacture of the Products to make available to Licensor on request all records of sales of hydroxyethyl starch to CJ and CJ's Subsidiaries and other Affiliates or any Third Person that manufactures any Product for CJ. Such records shall be open to inspection at any reasonable time within four (4) years after the royalty period to which such records relate by an independent certified public accountant selected by Licensor and retained at Licensor's expense; provided, however, that CJ shall bear the expense of an audit if the audit discloses that CJ has underpaid any royalty by an amount of 1% or more during any three month period. Said accountant shall sign a confidentiality agreement (which shall not prohibit disclosure of information in any lawsuit, arbitration or other proceeding) and shall then have the right to examine the records kept pursuant to this Agreement and report the findings of said examination of records to Licensor as is necessary to (i) evidence that records were or were not maintained and used in accordance with this Agreement, and (ii) report any impropriety or inaccuracy in the

determination or payment of any amount due to be paid under this Agreement. A copy of any report provided to Licensor by the independent certified public accountant shall be given concurrently to CJ.

(g) Payment by Affiliate. Licensor agrees that if any Subsidiary or other Affiliate of CJ pays, on behalf of CJ, any obligation of CJ under this Agreement, such payment shall be received in lieu of payment by CJ in satisfaction of such obligation under this Agreement. The Subsidiary or other Affiliate shall make payment to Licensor in United States dollars at a bank account designated by Licensor. The royalty payment shall be converted from foreign currency to United States dollars using exchange rates and conversion dates stated in Section 5(c) above.

(h) Royalty License Restrictions and Maximum Payments. If Korea restricts the royalty rate or amount payable on account of sales of Product in Korea, the amount payable hereunder shall not exceed the maximum amount payable under applicable laws, regulations or administrative rulings of Korea. If any royalty otherwise payable cannot be paid due to such restrictions, CJ shall pay an additional license fee in the amount of royalties that cannot be paid, if the payment of such additional license fee would not violate such law, regulation or administrative ruling.

6. Regulatory Approvals

(a) CJ shall, at its sole cost and expense, use its best efforts to obtain as promptly as practicable all government regulatory approvals required to manufacture, market, and use the Products in the Territory for human therapeutic purposes. CJ shall, at its sole cost and expense, (i) conduct all laboratory studies and tests, (ii) conduct all clinical studies and tests, (ii) prepare and file all applications, reports, and documents, (iii) take such other actions, and (iv) pay all fees, taxes, and assessments necessary to obtain and maintain in effect all regulatory approvals required to manufacture, market, and use the Products in the Territory for human therapeutic purposes, and to otherwise comply with all applicable laws in the Territory pertaining to the manufacture, use, sale, and marketing of the Products.

(b) CJ shall consult and cooperate with Licensor to obtain all governmental regulatory approval in the Territory. CJ shall own all data and other information gathered in clinical studies and testing conducted by CJ at its own cost and agrees to provide to Licensor to use such data and other information outside the Territory, which shall be deemed CJ's Confidential Information.

(c) CJ agrees that all applications for regulatory approval and all reports and other documents prepared and filed by CJ and its Subsidiaries or Affiliates with respect to each Product, and all actions taken by CJ and its Subsidiaries or Affiliates in connection with obtaining regulatory approval, shall conform in all respects with applicable laws, statutes, rules and regulations. CJ and its Affiliates will keep Licensor reasonably informed on the status of the submitted regulatory applications and regulatory approvals. CJ and its Affiliates shall maintain complete copies of all records, data and reports pertaining to each study for such period of time as may be required by the laws of the Territory.

(d) Licensor agrees to provide to CJ data from all completed clinical studies of the Products conducted by Licensor in countries outside the Territory, which data shall be deemed Licensor's Confidential Information. Licensor shall furnish to CJ and its Subsidiaries or Affiliates all information that is necessary for CJ and its Subsidiaries or Affiliates to apply for registration of the Product in the Territory and that is in Licensor's possession and which Licensor has the right to furnish to CJ and its Subsidiaries or Affiliates.

(e) Licensor shall have the right to use, outside the Territory, all CJ data and information, and all rights to use and cross-reference CJ data, documentation and information referred to above in this Section 6 with respect to the Products for purposes related to Licensor's product development and marketing activities, including, obtaining regulatory approvals of Products, and promoting, marketing and selling Products outside the Territory; and CJ shall provide Licensor promptly in writing all adverse events and safety data which CJ or its Subsidiaries and other Affiliates obtain concerning the Products.

(f) CJ shall have the right to use, in the Territory, all Licensor data and information, and all rights to use and cross-reference Licensor data, documentation and information referred to above in this Section 6 with respect to the Products for purposes related to CJ's product development and marketing activities, including, obtaining regulatory approvals of Products, and promoting, marketing and selling Products in the Territory, and Licensor shall provide CJ promptly in writing all adverse events and safety data which Licensor or its Subsidiaries and other Affiliates obtain concerning the Products.

7. Hydroxyethyl Starch Supply

During the term of this Agreement, CJ will be responsible for obtaining a supply of hydroxyethyl starch used in the Products sufficient to support market demand of the Products in the Territory.

8. Minimum Product Sales

(a) Minimum Amounts. CJ agrees to the establishment of the minimum annual Product sales targets for all Products in the aggregate:

First Year of sales - 8,000 Units
Second Year of sales - 15,000 Units
Third Year of sales - 25,000 Units
Fourth Year - 30,000 Units
Fifth Year - 40,000 Units

If actual sales for any year are less than the minimums shown above, CJ may, at its option, make supplement payments to Licensor to make up for any shortfall between royalty payments due on actual sales and royalty payments that would be due if the target minimum sales were achieved. In

the event that CJ does not achieve target minimum sales in the Territory or make up royalty shortfalls, Licensor has the right to convert the Exclusive License to a non-exclusive license and thereby grant Third Persons license to manufacture and market Products in the Territory. In the event that CJ's

Exclusive License is converted to an non-exclusive license, Licensor shall not be obligated to return or refund any License Fee or other payment made by CJ under this Agreement.

(b) CJ shall deliver to Licensor a report of total annual Product sales within (60) days after the end of each 12 month period following the commencement of Product sales.

(c) The first year of sales shall begin after six months from the date of price registration of the Products at NHI.

9. Patent and Trademark Marking

(a) CJ shall label or mark each Product or the Product container or package made by or on behalf of CJ with the patent number or numbers of any issued or pending Licensed Patents. The content, form, location and language used for such marking shall be in accordance with the laws and practices of the Territory and in accordance with CJ's marketing preferences.

(b) CJ shall label or mark each Product container, package, and label with the Licensed Trademark and Licensor's name and address. All uses of a Licensed Trademark shall include (i) the symbol (R) if the Licensed Trademark is registered with the United States Patent and Trademark Office, (ii) the symbol (TM) if the Licensed Trademark is not registered with United States Patent and Trademark Office, (iii) such symbols or indications of trademark registration or non-registration as may be comparable under Korean law to the symbols (R) and (TM), and (iv) a statement that the Licensed Trademark is licensed from Licensor.

(c) Licensor will make such filings and take such other actions as Licensor deems necessary to: (i) apply for and obtain, if feasible, new or additional patents pertaining to Products that may become Licensed Patents under this Agreement, (ii) maintain Licensed Patents in effect in the Territory; and (iii) obtain extensions of Licensed Patents to the extent such extensions are available. Such actions shall include contesting oppositions to the issuance of a patent filed in the Territory.

10. Right of First Refusal - New Products

(a) Licensor grants CJ a right of first refusal to obtain an Exclusive License in the Territory to manufacture, market, and sell New Products. Within thirty (30) days after written notice from Licensor offering to license a New Product under this Agreement and stating (i) the license fee payable for the New Product, (ii) the minimum annual sales, (iii) the expiration date of the license, and (iv) any other terms that vary from the terms of this Agreement with respect to other Products, CJ may exercise its right of first refusal with respect to that New Product by giving Licensor written notice of acceptance of the terms stated in Licensor's notice. Licensor and CJ will then proceed to execute an amendment or supplement to this Agreement that will provide CJ with an Exclusive License to the New Product on substantially the same terms and conditions as this Agreement with respect to the other Products, except that the amendment or supplement will provide for the new license fees, minimum sales, expiration dates, and any other terms stated in Licensor's notice or otherwise agreed upon by Licensor and CJ for the Exclusive License of the New Product.

(b) If CJ does not exercise its right of first refusal in writing within the thirty (30) day period provided in paragraph (a) of this Section, or if an amendment or supplement to this Agreement granting CJ an Exclusive License for the New Product is not executed within ninety (90) days after CJ's exercise of its right of first refusal, CJ's right to obtain such Exclusive License shall expire, CJ shall have no further rights with respect to such New Product, and Licensor shall be free to manufacture, import, offer for sale, and sell the New Product, or license the New Product to Third Persons, or to take any and all other actions with respect to the New Product, in the Territory. Licensor will not grant a Third Person a license to make, sell, offer to sell, and import the New Product in the Territory on terms that provide license fee, royalty payment, or other material financial terms that are more favorable to such Third Person than the license fee, royalty payment, or other material financial terms offered to CJ without first offering CJ the opportunity, for a period of thirty (30) days, to execute a license agreement on such more favorable terms. If CJ fails to execute the license agreement within a ninety (90) day period after CJ's positive notice to obtain a license the New Products, Licensor may proceed to enter into a license agreement on such terms with a Third Person and CJ will

have no further rights to obtain a license to manufacture, import, offer for sale, or sell the New Product.

(c) CJ shall exercise its rights under this Article 10 at such time so long as CJ still has license rights covering at least one original Product or one other New Product.

11. Infringement and Indemnification

(a) Infringement by Third Person. In the event Licensor or CJ have reason to believe that a Third Person may be infringing any of the Licensed Patents or infringing or diluting any Licensed Trademark, such party shall promptly notify the other party. CJ shall take prompt legal action to enforce the Licensed Patents or Licensed Trademarks, unless Licensor determines that Licensor will enforce the Licensed Patents or Licensed Trademarks itself. CJ shall pay all of its costs of such enforcement action (including, without limitation, all of its attorney's fees, litigation costs

and costs of investigation). If Licensor elects to institute enforcement action itself, CJ shall cooperate with Licensor in the enforcement action, and upon Licensor's request, CJ shall join in any such enforcement action. Licensor shall be entitled to retain any recovery which may be obtained in any lawsuit brought by Licensor; provided, however, that at CJ's option, Licensor's right to retain any such recovery shall either be subject first to CJ's recovery of its costs incurred in such lawsuit, or CJ may deem such costs to be a non-interest bearing credit against future royalties due to be paid to Licensor. To the extent that any award of damages or other compensation obtained by CJ in any lawsuit brought by CJ exceeds CJ's direct costs of litigation, such excess shall be treated as sales upon which a royalty shall be paid to Licensor; provided, that the royalty so payable shall be determined by dividing such amount by the average price per Unit at which the applicable Products were sold by CJ during the 12 months preceding the date of the award, and multiplying the result by the royalty per Unit then in effect under Section 4. Licensor will provide reasonable cooperation with respect to any lawsuit which CJ may bring pursuant to this Section 11. CJ shall not settle any lawsuit or other enforcement action without the prior written consent of Licensor.

(b) Alleged Infringement of Third Person Patents.

(i) If a claim or lawsuit is brought against CJ alleging infringement of any patent or infringement or dilution of any trademark owned by a Third Person arising from CJ's use of Licensed Patents, Licensed Trademarks, or licensed Proprietary Rights in the manufacture, marketing, or sale of a Product in the Territory, CJ shall promptly give written notice to Licensor of such claim or lawsuit and provide to Licensor all information in CJ's possession regarding such claim or lawsuit. Within a reasonable time after receiving notice of such claim or lawsuit, but in any event ninety (90) days after receiving such notice, Licensor shall advise CJ of Licensor's decision as to what action it plans to take to dispose of such claim or defend such lawsuit.

(ii) Licensor shall defend, indemnify and hold CJ harmless against any judgment, damage, liability, loss, cost or other expense (including legal fees) resulting from any claim or lawsuit which relates to or arises out of the alleged infringement by CJ of any patent owned by a Third Person to the extent that the alleged infringement relates to CJ's use of Licensed Patents, Licensed Trademarks, or licensed Proprietary Rights in the manufacture, marketing, or sale of a Product in the Territory; provided that, CJ shall promptly give notice to Licensor of any such claim or lawsuit, shall provide to Licensor all information in CJ's possession regarding such claim or lawsuit, and shall provide Licensor such reasonable assistance as Licensor may, from time to time, reasonably request. Licensor shall have no obligation to indemnify or defend CJ against any claim or lawsuit pertaining to CJ's use of any technology, method, process, devise, or equipment in connection with manufacturing or packaging that was developed by CJ or obtained by CJ from a Third Person. If Licensor notifies CJ to discontinue manufacturing and selling any Product because of a potential infringement, then any liability for such infringement following such notice shall be solely for CJ's account and shall not be indemnified by Licensor; provided however, that if such notice is given by Licensor to CJ to discontinue the manufacture and sale

of any Product within one year after the commencement of sale of such Product in the Territory, then

Licensor shall refund to CJ the full amount of the License Fees paid by CJ to Licensor as described in Section 3 above and if such notice is given within 2 years after the commencement of sale of such Product in the Territory, then Licensor shall refund to 50% of the License Fees paid by CJ to Licensor. Licensor, at its option and expense, may dispose of such claim or may conduct the defense of such lawsuit

(iii) If Licensor disposes of a claim or conducts the defense of a lawsuit for which it is obligated to indemnify CJ pursuant to Section 11(b)(ii), there shall be no abatement of the applicable royalties payable for sales of any Product during the pendency of such disposition or lawsuit or any appeal taken from it. If Licensor elects not to dispose of such claim or defend such lawsuit, CJ may defend the claim or lawsuit. CJ shall not be authorized to settle such lawsuit without Licensor's prior written consent, unless such settlement imposes on Licensor no direct or indirect liability for the payment of damages or other obligations and CJ agrees in writing to waive any claims or rights against Licensor for indemnification under this Agreement or otherwise arising from or in connection with such lawsuit and settlement. For purposes of CJ's conduct of the disposition or defense, Licensor shall furnish to CJ such reasonable assistance as CJ may need and from time to time reasonably request. If CJ takes on the disposition of a claim or defense of a lawsuit for which Licensor is obligated to indemnify CJ pursuant to Section 11(b)(ii), then the payments of royalties on sales of such Product, which would otherwise be payable to Licensor under this Agreement, shall be reduced during the pendency of such lawsuit or any appeal taken from it by the actual out of pocket expenses incurred by CJ in disposing of such claim or defending such lawsuit, or participating in any such appeal; provided, that CJ provides Licensor with full and accurate documentation of the expenses so deducted. Upon final resolution of the above described claim, lawsuit and/or appeal, CJ shall resume paying Licensor full royalties on sales of the Product or Products in question.

(iv) If CJ becomes obligated to pay royalties to any Third Person, in order to use Licensed Patents and Licensed Trademarks to manufacture, market, or sell a Product in the Territory without infringing upon a patent or trademark held by that Third Person, the entire amount of the royalties paid to the Third Person shall be creditable against royalties otherwise payable to Licensor under this Agreement; provided, that no such credit shall be allowed with respect to (a) any royalty paid in connection with a settlement or compromise of a Third Party claim or lawsuit unless Licensor shall have approved or consented to such settlement or compromise, and (b) any royalty paid for the use of any technology, method, process, devise, or equipment in connection with manufacturing, packaging or any container or delivery system, or the use of any trademark, that was developed by CJ, any Subsidiary or other Affiliate of CJ

(c) By Licensor. Licensor shall defend, indemnify and hold CJ harmless against any liability, damage, loss, cost or expense, including legal fees, arising out of or resulting from any Third Person claims or lawsuits made or brought against CJ due to

(i) Licensor's breach and failure to cure such breach in accordance with Section (b)(ii); and

(ii) Licensor's breach of a representation or warranty set forth in Section 14.

(d) By CJ. CJ shall defend, indemnify and hold Licensor harmless against any liability, damage, loss, cost or expense, including legal fees, arising out of or resulting from any Third Person claims or lawsuits made or brought against Licensor to the extent such damage, loss, cost or expense arises out of or relates to negligence or willful misconduct of CJ or any Subsidiary or other Affiliate with regard to the manufacture, use, testing, storage, promotion, shipment or sale of, or other action or omission with respect to, a Product, or any container, packaging or delivery system of a Product, or the use of the Proprietary Rights.

(e) Conditions to Indemnification. The agreement of the parties to indemnify each other, as provided in this Section 11, is conditioned upon the indemnified party's obligation to: (i) advise the indemnifying party of any claim or lawsuit, in writing, within twenty (20) days after the indemnified party has received notice of said claim or lawsuit, or within such a time frame as not to materially prejudice the rights of the indemnifying party to defend or settle such claim or lawsuit, and (ii) assist the indemnifying party and its representatives in the investigation and defense of any claim and/or lawsuit for which indemnification is provided. The agreement of the parties to indemnify each other shall not be valid as to any settlement of a claim or lawsuit or offer of settlement or compromise without the prior written approval of the indemnifying party.

(f) Limit on Consequential Damages. Notwithstanding any other provision of this Agreement, neither party shall be liable to the other for any consequential, incidental, or special damages whatsoever, unless such damages are awarded to a Third Person with respect to an infringement against which one party is to indemnify the other.

12. Confidentiality

(a) Confidentiality. Neither party shall disclose any Confidential Information received from the other party pursuant this Agreement. This obligation will continue for a period of ten (10) years after expiration or prior termination of this Agreement.

(b) Disclosure. Nothing contained in this Section shall be construed to restrict the parties from disclosing Confidential Information as required:

(i) For regulatory, tax or customs reasons;

(ii) For audit purposes;

(iii) By court order or other government order or request as long as reasonable efforts have been made to assure its confidentiality or Licensor is timely notified to make such efforts; or

(iv) For using such Confidential Information as is reasonably necessary to perform acts permitted by this Agreement.

13. Term and Termination

(a) Term. Unless otherwise terminated as herein provided, this Agreement shall terminate upon expiration of the last to expire Licensed Patent in the Territory, or on approval and marketing of a generic equivalent of the most recently introduced Product (including any improved version or formulation of a Product) by a Third Person in the Territory, whichever first occurs. CJ agrees not to market a generic equivalent before termination of this Agreement.

(b) Early Termination. Either party may terminate this Agreement by giving to the other party sixty (60) days prior written notice as follows:

(i) Upon the bankruptcy or the insolvency of the other party; or

(ii) Upon the breach of any material provision of this Agreement by the other party if the breach is not cured within sixty (60) days after written notice thereof to the party in default; or

(iii) At any time after June 30, 2005, if CJ has not obtained all regulatory approvals required to manufacture and market at least one Product in the Territory and commenced sales of at least one Product in the Territory in case that clinical testing is not required.

(c) Consequences of Termination.

(i) Survival of Liability. Termination, expiration, cancellation or abandonment of this Agreement through any means and for any reason shall not relieve the parties of any obligation accruing prior thereto and shall be without prejudice to the rights and remedies of either party with respect to any

antecedent breach of any of the provisions of this Agreement.

(ii) Return of Confidential Information. Upon expiration or termination of this Agreement, CJ shall promptly return to Licensor all copies of Licensor's Confidential Information.

(iii) Discontinuation of Use of Licensed Patents, Licensed Trademarks and Confidential Information. Upon the expiration or termination of this Agreement, CJ, its Subsidiaries, Affiliates, and any sublicensees shall immediate cease all use of Licensed Patents, Licensed Trademarks, Proprietary Rights, and Confidential Information, and shall discontinue the manufacture and sale of the Products, except that Licensed Trademarks may be used for a period of 180 days exclusively for the

purpose of selling inventory of Products on hand on the date this Agreement terminated.

(d) Option to Extend. Upon the commencement of marketing of a generic equivalent of the most recently introduced Product (including any improved version or formulation of a Product) by a Third Person in the Territory after (i) expiration of the last issued patent contained in Licensed Patents, or (ii) loss of patent protection under all Licensed Patents, whichever comes first, CJ shall have the right to continue to manufacture and sell the Products in the Territory under this Agreement upon notice to Licensor; provided that the royalties payable with respect to Sales shall be reduced by 50%

14. Representations and Warranties of Licensor

Licensor represents and warrants that:

(a) Licensor has the full right and power to perform the obligations and grant the Exclusive License set forth in this Agreement, and there are no outstanding agreements, assignments or encumbrances in existence inconsistent with the provisions of this Agreement;

(b) The Licensed Patents and/or Proprietary Rights have not knowingly been obtained through any activity that would limit or destroy the validity of the Licensed Patents and/or Proprietary Rights, and the Licensor has no knowledge or information that would materially adversely impact the validity and/or enforceability of the existing Licensed Patents and/or Proprietary Rights;

(c) To the best of Licensor's knowledge, there are no actions, threatened or pending, before any court relating to the Licensed Patents and/or Proprietary Rights;

(d) Licensor has not authorized others to practice the Licensed Patents and/or Proprietary Rights in the Territory;

(e) Licensor owns and possesses all right, title and interest in and to the Licensed Patents and/or Proprietary Rights and, to the best of Licensor's knowledge, no Third Person has acquired, owns or possesses any right, title or interest in or to the Licensed Patents and/or Proprietary Rights in the Territory;

(f) Schedule III lists all patents issued and patent applications filed by Licensor in the Territory on or before the date of this Agreement within the scope of the Licensed Patents and hence subject to this Agreement.

15. Representations and Warranties of CJ

CJ represents and warrants that:

(a) This Agreement has been duly authorized, executed and delivered by CJ and is the valid and binding agreement of CJ, enforceable in accordance with its terms.

(b) The execution and delivery of this Agreement does not, and manufacture and sale of the Products by CJ will not (a) violate the terms of any order, writ or decree of any court or judicial or regulatory authority or body, or (b)

conflict with or result in a breach of any condition or provision or constitute a default under or pursuant to the terms of any contract, license, or agreement to which CJ or any Affiliate is a party, or which is or purports to be binding upon CJ or any Affiliate, or upon any of the properties or assets of CJ or any Affiliate.

(c) CJ has no knowledge or information that would lead CJ to believe that the existing Licensed Patents and/or Proprietary Rights are not valid or enforceable;

(d) CJ has or will obtain a supply of hydroxyethyl starch sufficient to meet market demand for the Products.

(e) CJ has or will obtain manufacturing facilities capable of producing a sufficient quantity of the Products, under good manufacturing practices and the applicable laws, statutes, rules, and regulations of the Territory, to meet market demand.

(f) CJ and its Subsidiaries will manufacture the Products under good manufacturing practices, in compliance with all applicable laws, statutes, rules and regulations of the Territory.

(g) CJ and its Subsidiaries will distribute, market and sell the Products in compliance with all applicable laws, statutes, rules and regulations of the Territory.

16. Notices

All notices given under this Agreement shall be in writing and shall be delivered personally, by facsimile confirmed by postage prepaid first-class mail, by over-night or next business day air courier, or by postage prepaid certified mail to the following addresses of the respective parties:

CJ Corp.
500, 5-Ga, Namdaemun-No
Jung-Gu, Seoul, 100-095, Korea
FAX: 82-2-726-8379/8389
Attention:

BioTime, Inc.

935 Pardee Street
Berkeley, CA 94710
FAX: (510) 845-7914
Attention: Chief Executive Officer
With copies to: Chief Financial Officer of the Corporation

Notices shall be effective upon receipt if personally delivered or delivered by facsimile or air courier, or on the fifth business day following the date of mailing. A party may change its address listed above by notice to the other party.

17. Alternate Dispute Resolution

The parties recognize that bona fide disputes may arise which relate to the parties' rights and obligations under this Agreement. The parties agree that any such dispute shall be resolved by arbitration in accordance with the procedures set forth in Schedule IV.

18. Applicable Law

This Agreement shall be governed by and interpreted in accordance with the laws of the State of California, regardless of the choice of law principles of California or any other jurisdiction.

19. Assignment

Neither party shall assign this Agreement or any part thereof without the prior written consent of the other party; provided, however, that without the consent of the other party (a) CJ may assign this Agreement to a Subsidiary or an Affiliate, but such assignment shall not relieve CJ of responsibility for the performance of all of the obligations which CJ assigns, (b) Licensor may assign this Agreement to a wholly owned subsidiary of Licensor, (c) Licensor may assign

its rights to receive license fees or royalty payments, and (d) Licensor may assign or sell its rights and obligations under this Agreement in connection with the transfer or sale of substantially its entire business to which this Agreement pertains or through a merger or consolidation with another company. Any permitted assignee (other than an assignee of a right to receive payments due Licensor) shall assume all obligations of its assignor under this Agreement. No assignment shall relieve any party of responsibility for the performance of any obligation which such party has hereunder.

20. Entire Agreement

This Agreement and the Exhibits and Schedules constitute the entire agreement between the parties concerning the subject matter hereof and supersede all written or oral prior agreements or understandings with respect thereto. No course of dealing or usage of trade shall be used to modify the terms and conditions hereof.

21. Severability

This Agreement is subject to the restrictions, limitations, terms and conditions of all applicable laws, governmental regulations, approvals and clearances. If any term or provision of this Agreement shall for any reason be held invalid, illegal or unenforceable in any respect, such invalid, illegal or unenforceable provision shall be modified so as to conform to the applicable requirements, and this Agreement shall be modified by the parties so as to accomplish as nearly as possible the original intention of the parties consistent with applicable laws and regulations.

22. Waiver - Modification of Agreement

No waiver or modification of any of the terms of this Agreement shall be valid unless in writing and signed by authorized representatives of the party to be charged. Failure or delay by either party to enforce any rights under this Agreement shall not be construed as a waiver of such rights nor shall a waiver by either party in one or more instances be construed as constituting a continuing waiver or as a waiver in other instances.

The parties intending to be bound by the terms and conditions hereof have caused this Agreement to be signed by their duly authorized representatives on the date first above written.

CJ CORP.	BIOTIME, INC.
By: /s/ Dong-Il Lee ----------	By: /s/ Paul Segall ----------
Title: President Head of Pharmaceutical Business Unit, CJ Corp.	Title: Chairman and Chief Executive Officer BioTime, Inc.

Exclusive License Agreement

Schedule I

Product Formulation

Hextend and PentaLyte Formulation

Hydroxyethyl Starch	6%
Sodium Chloride	115 millimoles/liter
Magnesium Chloride Hexahydrate	0.45 millimoles/liter
Calcium Chloride Dihydrate	2.5 millimoles/liter
Potassium Chloride	3 millimoles/liter
Glucose	5 millimoles/liter
Sodium Lactate	28 millimoles/liter

Exclusive License Agreement

Schedule II

New Product Formulation

HetaCool Formulation

Same as Hextend plus bicarbonate.

HetaFreeze Formulation

Same as HetaCool with generally known freeze-protective agents added alone or in combination for example: glucose, glycerol, DMSO (dimethyl sulfoxide)

Exclusive License Agreement

Schedule III

Patent Rights

Patent Applications:

Korean Patent 95-705531, issued July 6, 2000

Schedule IV

Arbitration

In the event that any controversy or claim arises out of or relating to any provision of this Agreement, the parties shall try to settle their differences amicably between themselves. Any unresolved disputes arising between the parties relating to, arising out of or in any way connected with this Agreement or any term or condition of this Agreement, or the performance of either party under this Agreement, whether before or after termination of this Agreement, shall be resolved by the final and binding arbitration.

Whenever a party shall decide to institute arbitration proceedings, it shall give written notice to that effect to the other party. The party giving such notice shall refrain from instituting the arbitration proceedings for a period of sixty (60) days following such notice to allow the parties time to further attempt to come to an amicable resolution of the dispute.

The arbitration will be conducted by a panel of three (3) arbitrators appointed in accordance with American Arbitration Association ("AAA") rules; provided, however, that each party shall within thirty (30) days after the institution of the arbitration proceedings appoint an arbitrator, and the two arbitrators so appointed shall select a neutral arbitrator to be the chairman of the arbitration panel, within thirty (30) days thereafter. If the arbitrators appointed by the parties are unable to select a neutral arbitrator within such thirty (30) day period, the neutral arbitrator shall be appointed in accordance with the AAA rules. All arbitrators eligible to conduct the arbitration must agree to render their opinion(s), determination(s) and award(s) within thirty (30) days after the final arbitration hearing.

Arbitration shall be held in San Francisco, California according to the commercial rules of the AAA; provided, however, that the parties shall be entitled to take depositions and obtain discovery as provided in California Code of Civil Procedure Section 1283.05, and the arbitrator or arbitrators shall have the powers as set forth therein. In addition, the arbitrators shall have the authority to impose sanctions for the failure of refusal of any party to permit discovery as provided in California Code or Civil Procedure Section 1283.05 or to comply with any discovery order or the arbitrators. Such sanctions against a party may include, without limitation, one or more of the following: (i) inference that facts alleged by the adverse party are true and correct; (ii) a prohibition or limitation upon the evidence that may be presented by the party being sanctioned; (iii) the entry of a default award in against the party being sanctioned and in favor of the adverse

party, and (iv) the imposition or assessment of costs and attorneys' fees against the party being sanctioned.

Neither any individual arbitrator nor the panel of arbitrators shall have the power to award punitive damages under this Agreement, and any award of punitive damages is expressly prohibited.

Decisions of the arbitrators shall be final and binding upon the parties. Judgment on the arbitration award rendered by the arbitrators may be entered in a court having jurisdiction. In any arbitration pursuant to this Agreement, the arbitrators shall apply the substantive laws of the state of California.