

Gentium S.p.A.  
Form 20-F  
April 30, 2007

As filed with the Securities and Exchange Commission on April 30, 2007

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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549**

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**FORM 20-F**

o **REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR (g) OF THE SECURITIES EXCHANGE ACT OF 1934**

**OR**

b **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

**For the Fiscal Year Ended: December 31, 2006**

**OR**

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

**OR**

o **SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

000-51341  
(Commission file number)

**GENTIUM S.p.A.**  
(Exact Name of Registrant as Specified in its Charter)

**NOT APPLICABLE**  
(Translation of Registrant's Name into English)

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**Italy**  
(Jurisdiction of incorporation or organization)

**Piazza XX Settembre 2  
22079 Villa Guardia (Como), Italy  
+39 031 385111**  
(Address, including zip code, and telephone number,  
including area code, of Registrant's principal executive offices)

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Securities registered or to be registered pursuant to Section 12(b) of the Act.

<u>Title of each class</u>	<u>Name of each exchange on which registered</u>
American Depositary Shares Ordinary shares with a par value of €1.00 each*	The Nasdaq Global Market The Nasdaq Global Market
(Title of Class)	

Securities registered or to be registered pursuant to Section 12(g) of the Act: **None**

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act: **None**

Indicate the number of outstanding shares of each of the issuer's classes of capital or common stock as of the close of the period covered by the annual report.

**11,773,613 ordinary shares**

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· Not for trading, but only in connection with the registration of the American Depositary Shares.

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes

No

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.

Yes

No

Note - Checking the box above will not relieve any registrant required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934 from their obligations under those Sections.

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

No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, or a non-accelerated filer. See definition of "accelerated filer and large accelerated filer" in rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer

Accelerated filer

Non-accelerated filer

Indicate by check mark which financial statement item the registrant has elected to follow.

Item 17

Item 18

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

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Yes

No

Indicate by check mark whether the registrant has filed all documents and reports required to be filed by Sections 12, 13 or 15(d) of the Securities Exchange Act of 1934 subsequent to the distribution of securities under a plan confirmed by a court.

Not applicable.

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**PART I**

***ITEM 1. IDENTITY OF DIRECTORS, SENIOR MANAGEMENT AND ADVISORS***

Not applicable.

***ITEM 2. OFFER STATISTICS AND EXPECTED TIMETABLE***

Not applicable.

***ITEM 3. KEY INFORMATION***

**GENTIUM S.P.A.**

We are a biopharmaceutical company focused on the research, development and manufacture of drugs to treat and prevent a variety of vascular diseases and conditions related to cancer and cancer treatments.

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### SELECTED FINANCIAL DATA

The following selected financial data should be read in conjunction with “Operating and Financial Review and Prospects” and our financial statements and the related notes appearing elsewhere in this annual report. The selected financial data as of December 31, 2005 and December 31, 2006 and for each of the three years ended December 31, 2006 are derived from our audited financial statements, which are included in this annual report. The selected financial data as of December 31, 2003 and December 31, 2004 and for the years ended December 31, 2002 and December 31, 2003 has been derived from our audited financial statements, which are not included in this annual report. The selected financial data as of December 31, 2002 has been derived from our unaudited financial statements, which are not included in this annual report. Our historical results are not necessarily indicative of results to be expected in any future period.

Certain reclassification of prior period amounts have been made to our financial statements to conform to the current period presentation. The convenience translation into U.S. dollars has been done solely for the benefit of the reader, and does not imply that our results would actually have been these amounts in U.S. dollars had the U.S. dollar been our functional currency.

#### Statement of Operations

##### Data:

For the Years Ended December 31,

(000s omitted except per share data)

	2002	2003	2004	2005	2006	2006 <sup>(1)</sup>
Revenues:						
Sales to affiliates	€ 5,915	€ 6,532	€ 2,870	€ 3,260	€ 3,754	\$ 4,954
Third party product sales	—	—	243	101	321	424
Total product sales	5,915	6,532	3,113	3,361	4,075	5,378
Other income and revenues	392	1,843	583	280	249	329
Total revenues	6,307	8,375	3,696	3,641	4,324	5,706
Operating costs and expenses:						
Cost of goods sold	2,135	2,435	2,579	2,911	3,092	4,081
Charges from affiliates	—	1,485	1,665	1,047	854	1,127
Research and development	2,909	2,253	2,922	4,557	8,927	11,781
General and administrative	864	854	1,194	2,284	5,421	7,154
Depreciation and amortization	102	67	89	118	261	344
	6,010	7,094	8,449	10,917	18,555	24,487
Operating income (loss)	297	1,281	(4,753)	(7,276)	(14,231)	(18,781)
Other income	195	—	—	—	-	-
Foreign currency exchange gain (loss), net	268	156	(55)	(249)	(627)	(827)
Interest income (expense), net	(105)	(71)	(2,192)	(4,148)	490	646
Pre-tax income (loss)	655	1,366	(7,000)	(11,673)	(14,368)	(18,961)
Income tax expense (benefit):						
Current	128	243	65	—	-	-
Deferred	108	(84)	(37)	646	-	-
	236	159	28	646	-	-

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Net income (loss)	€	419	€	1,207	€	(7,028)	€	(12,319)	€	(14,368)	\$	(18,961)
Net income (loss) per share:												
Basic and Diluted	€	0.08	€	0.24	€	(1.41)	€	(1.78)	€	(1.33)	\$	(1.76)

(1)Euro amounts are translated into U.S. dollars using the Noon Buying Rate for the Euro on December 29, 2006, of US\$1.3197 per Euro. No representation is made that the Euro amounts referred to in this annual report could have been or could be converted into U.S. dollars at any particular rate or at all.

The following table summarizes certain of our balance sheet data.

<i>(000's omitted)</i>	As of December 31,					
	2002	2003	2004	2005	2006	2006 <sup>(1)</sup>
<b>Balance Sheet Data:</b>						
Cash and cash equivalents	€ 346	€ 23	€ 2,461	€ 12,785	€ 10,205	\$ 13,468
Working capital (deficit)	(1,822)	(3,037)	(7,611)	11,758	13,543	17,873
Property, net	1,736	4,045	8,543	8,631	9,394	12,397
Total assets	6,643	9,013	15,909	26,113	35,393	46,708
Long-term debt, net of current maturities	1,238	1,112	3,361	2,485	5,683	7,500
Shareholders' equity (deficit)	(1,015)	217	(2,074)	17,474	21,687	28,620

(1)Euro amounts are translated into U.S. dollars using the Noon Buying Rate for the Euro on December 29, 2006, of US\$1.3197 per Euro. No representation is made that the Euro amounts referred to in this annual report could have been or could be converted into U.S. dollars at any particular rate or at all.

### Exchange Rate Information

Fluctuations in the exchange rates between the Euro and the U.S. dollar will affect the U.S. dollar amounts received by owners of ADSs on conversion by the depository of dividends, if any, paid in euros on the ordinary shares represented by the ADSs. Moreover, such fluctuations may also affect the U.S. dollar price of the ADSs on the Nasdaq Global Market. The following table sets forth information regarding the exchange rates of U.S. dollars per Euro for the periods indicated, calculated by using the average of the noon buying rates on the last day of each month during the periods presented.

Year	U.S. Dollar per Euro	
	Average	Period End
2001	0.8909	0.8901
2002	0.9495	1.0485
2003	1.1411	1.2597
2004	1.2478	1.3538
2005	1.2400	1.1842
2006	1.2661	1.3197

Source: Federal Reserve Statistical Release H.10

The following table sets forth information regarding the high and low exchange rates of U.S. dollars per Euro for the periods indicated using the noon buying rate on each day of such period.

Month	U.S. Dollar per Euro	
	High	Low
October 2006	1.2744	1.2502
November 2006	1.3162	1.2705
December 2006	1.3327	1.3073
January 2007	1.3286	1.2904
February 2007	1.3246	1.2933
March 2007	1.3374	1.3094
April 2007 (through April 27, 2007)	1.3647	1.3363

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Source: Federal Reserve Statistical Release H.10

On April 27, 2007, the noon buying rate was €1.00 to \$1.3625.

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We use the Euro as our native currency for financial reporting. This annual report contains translations of euros into U.S. dollars at specified rates solely for the convenience of the reader. No representation is made that the Euro amounts referred to in this annual report could have been or could be converted into U.S. dollars at any particular rate or at all.

### **CAPITALIZATION AND INDEBTEDNESS**

Not applicable.

### **REASONS FOR THE OFFER AND USE OF PROCEEDS**

Not applicable.

### **RISK FACTORS**

*You should carefully consider the risks described below, in conjunction with the other information and financial statements and related notes included elsewhere in this annual report, before making an investment decision. You should pay particular attention to the fact that we conduct our operations in Italy and are governed by a legal and regulatory environment that in some respects differs significantly from the environment that prevails in other countries with which you may be familiar. Our business, financial condition or results of operations could be affected materially and adversely by any or all of these risks. In that event, the market price of our ADSs could decline and you could lose all or part of your investment.*

#### **Risks Relating to Our Business**

**We have generated limited revenues from commercial sales of our products to date and we do not know whether we will ever generate significant revenues or achieve profitability.**

We are focused on product development and have generated limited revenue from commercial sales of our products to date. We had total product sales of €3.113 million, €3.361 million and €4.075 million in 2004, 2005 and 2006, respectively. We do not expect our total product sales to materially increase unless we are able to sell our product candidates.

We expect to continue to incur significant expenses as we research, develop, test and seek regulatory approval for our product candidates. We incurred a net loss of €7.0 million, €12.3 million and €14.4 million in 2004, 2005 and 2006, respectively. We cannot assure you that we will ever become profitable. If we fail to achieve profitability within the time frame expected by investors or securities analysts, the market price of our ADSs may decline.

**We currently do not have any regulatory approvals to sell defibrotide to treat or prevent VOD or defibrotide to treat multiple myeloma or any of our other product candidates and we cannot guarantee that we will ever be able to sell any of these products anywhere in the world.**

We must demonstrate that our product candidates satisfy rigorous standards of safety and effectiveness before the FDA, the European Commission and other regulatory authorities will approve the products for commercial marketing. We or others must conduct clinical trials of those products which must be approved by the FDA or other regulatory agencies. These trials are time consuming and expensive, and we cannot guarantee whether they will be successful. Currently, the only regulatory approvals we have relate to the use of defibrotide to prevent vascular disease with risk of thrombosis in Italy. We do not have approval to sell defibrotide to treat or prevent VOD, defibrotide to treat multiple myeloma or any of our other product candidates anywhere in the world. We will need to conduct significant additional research, preclinical testing and clinical testing before we can file applications with the FDA, the European

Commission and other regulatory authorities for approval of our product candidates. In addition, to compete effectively, our future products must be easy to use, cost-effective and economical to manufacture on a commercial scale. We may not achieve any of these objectives, and, as a result, may not be able to sell any of our product candidates anywhere in the world.

**We may not successfully enroll patients in our current Phase III clinical trial of defibrotide to treat Venous-Occlusive Disease with multiple-organ failure or the related historical trial.**

Our current Phase III clinical trial of defibrotide to treat Venous-Occlusive Disease (VOD) with multiple-organ failure in the United States has two elements: the prospective arm, in which defibrotide is administered to the patients, and a historical control arm. We are not conducting a traditional control group of patients who receive no treatment for the reasons discussed in the risk factor below. The protocol for the treatment trial is extremely strict, meaning that only patients who meet very specific criteria are eligible to enroll. The protocol calls for a total enrollment of 80 patients in the prospective arm. Due to the small number of patients who meet the protocol enrollment criteria, we may not be able to enroll these 80 patients in a timely manner or at all.

The related historical control arm measures the historical result of patients who contracted VOD with multiple-organ failure at the centers participating in the treatment trial in the past (prior to the start of the treatment trial) and were not treated with defibrotide. We believe that many of the centers participating in our current treatment trial treated patients with defibrotide on a compassionate use (emergency protocol, single IND) for several years before the treatment trial started, and as a result, there may be few patients eligible to enroll in the historical arm of this trial. The historical arm protocol calls for a total enrollment of 80 patients. Again, due to the small number of patients who meet the protocol historical enrollment criteria, we may not be able to enroll these 80 patients in a timely manner or at all, or we may need to expand the number of patients we review to find 80 patients who meet the enrollment criteria, which could result in additional expense to the Company.

In such events, we may have to restructure this trial, which would substantially delay the time period before we could commercialize this product. Since our other advanced product candidates are dependent in part upon approval of this lead product candidate, such a delay would also slow development of our other product candidates.

**The FDA and other regulatory authorities may require us to conduct other clinical trials of defibrotide to treat VOD with multiple-organ failure.**

The Dana-Farber Cancer Institute at Harvard University conducted a Phase II clinical trial in the United States for the use of defibrotide to treat VOD with multiple-organ failure that concluded in December 2005. Based upon a historical trial by Dana-Farber at three centers consisting of 20 patients and our review of more than 200 articles in the medical literature, we believe that the survival rate for this disease is approximately 20%. As a result of this research and belief and the fact that we believe that there are no approved treatments available at this time, the Dana-Farber clinical investigators did not establish a control group of patients who do not receive the drug, as is customarily done in the FDA approval process, on the basis that it would be unethical to refuse treatment to patients when the treatment being investigated could potentially save their lives. The FDA has stated a preference for a double-blind study that utilizes a control group but indicated that they would review a trial using a historical control only. Our Phase III clinical trial of defibrotide to treat VOD with multiple-organ failure that is currently underway uses historical control only. The FDA, upon reviewing this trial, may require us to conduct a new clinical trial using a control group and other regulatory authorities may take the same position. This could significantly delay the filing of a New Drug Application with the FDA or applications for other regulatory approval for this use because one or more of the clinical centers where the clinical trial is to be conducted may not be willing to conduct such a clinical trial, again on the basis that it is unethical to refuse treatment to patients when the treatment being investigated could potentially save their lives. The committee of clinical investigators who sponsored a Phase II/III clinical trial of defibrotide to treat VOD in Europe conducted by Consorzio Mario Negri Sud, which had a control group, cancelled the trial in October 2005 due to a lack of patients enrolling. We believe that patients were reluctant to enroll due to the possibility of being placed into the control group and not receiving treatment. A requirement for a control group would also require the expenditure of more funds on clinical trials and delay our ability to generate revenue from this product candidate.

In addition, the FDA may determine that the Phase III clinical trial and previous clinical trials do not include enough patients to conclusively demonstrate the product candidate's safety, and could require us to perform additional trials to establish such safety. Such a requirement would require the expenditure of more funds and delay our ability to generate revenue from this product candidate.

**At present, we do not have sole control of the distribution of defibrotide, and we may not be able to gain such control, which may adversely affect our clinical trials and our pricing of defibrotide.**

Because defibrotide has been on the market in Italy, we believe it has been purchased and sold in other countries where its use is not licensed or permitted. This could impact our ability to enroll patients in our trials and the timing of such enrollments.

**Our additional product candidates are at early stages of development and will require clinical trials which may not be successful.**

We intend to apply for FDA and other regulatory agency approval for our additional product candidates, including other uses of defibrotide, in the future, and these additional product candidates will require that we conduct clinical trials and undergo the regulatory approval process. The commencement and completion of these clinical trials could be delayed or prevented by a variety of factors, including:

- delays in identifying and reaching agreement on acceptable terms with institutional review boards of clinical trial providers and prospective clinical trial sites;
- delays in obtaining FDA or other regulatory agency clearance to commence a clinical trial;
- delays in the enrollment of patients;
- lack of effectiveness of the product candidate during clinical trials; or
- adverse events or safety issues.



We do not know whether these future clinical trials will be initiated or completed at all. Significant delays in clinical trials will impede our ability to commercialize these additional product candidates and generate revenue, and could significantly increase our development costs.

**We may be required to suspend or discontinue clinical trials due to adverse events or other safety issues that could preclude approval of our products or due to difficulty enrolling participants.**

Our clinical trials may be suspended at any time for a number of safety-related reasons. For example, we may voluntarily suspend or terminate our clinical trials if at any time we believe that our product candidates present an unacceptable risk to the clinical trial patients. In addition, institutional review boards of clinical trial providers or regulatory agencies may order the temporary or permanent discontinuation of our clinical trials at any time if they believe that the clinical trials are not being conducted in accordance with applicable regulatory requirements, including if they present an unacceptable safety risk to patients.

Administering any product candidate to humans may produce undesirable side effects. VOD and VOD with multiple-organ failure are complications associated with high dose chemotherapy and stem cell transplantation. Adverse events involving vascular disorders, coagulation, and potentially life-threatening bleeding have been reported in patients with VOD treated with defibrotide which potentially could be related to the defibrotide therapy. Hypotension has been reported as a possibly related serious adverse event in the trials of defibrotide to treat VOD with multiple-organ failure. Also, we discontinued a 69-patient Phase I/II clinical trial of defibrotide to prevent deep vein thrombosis after hip surgery in Denmark in 2002 after three patients experienced hypotension after receiving the defibrotide intravenously. That trial was discontinued due to the hypotension and because defibrotide can also be administered orally to prevent deep vein thrombosis. These adverse events reports will be weighed by FDA and other regulatory authorities in determining whether defibrotide can, from a risk-benefit perspective, be considered to be safe and effective to treat VOD with multiple-organ failure, to prevent deep vein thrombosis or any other indication for which approval is sought.

It is possible that as further data are collected and analyzed, additional adverse events or safety issues could emerge which could impact conclusions relating to the safety of these additional product candidates. As one of our current products and many of our product candidates utilize or will utilize defibrotide, any problems that arise from the use of this drug would severely harm our business operations, since most of our anticipated primary revenue sources would be negatively affected.

Furthermore, the committee of clinical investigators who sponsored a Phase II/III clinical trial of defibrotide to treat VOD in Europe that was conducted by Consorzio Mario Negri Sud cancelled the trial in October 2005 due to a lack of enrollees. In addition, the National Institute of Tumors in Milan cancelled a Phase I clinical trial of defibrotide to increase the number of stem cells available for transplant in December 2005 due to a lack of eligible enrollees. We are co-sponsoring with the European Group for Blood and Marrow Transplantation a Phase II/III clinical trial in Europe of defibrotide to prevent VOD in children. The participants in this trial randomly receive either defibrotide or no treatment. We may have difficulty enrolling participants in this trial as patients may be reluctant to take the risk of not receiving treatment with defibrotide. Our other clinical trials may also be discontinued if we or the sponsors are not successful in enrolling participants.

**We expect to rely upon Sirton to process defibrotide both for current sales in Italy and future sales outside of Italy, and we may not be able to quickly replace Sirton if it fails in its duties.**

Currently we sell defibrotide to our affiliate, Sirton, which processes it into ampoule or oral formulations and then sells the finished product to Crinos, who resells it in Italy. In connection with our purchase of the Italian marketing authorizations to defibrotide in Italy and related trademarks in Italy, we expect to revise enter into a new contract with Sirton in the near future whereby we hire Sirton to do the processing for us and then we sell the finished product to

Crinos, which will distribute them to the Italian market. In addition, we expect to hire Sirton to process defibrotide if and when our advanced product candidates are approved for commercialization. Sirton has experienced financial difficulties recently. If Sirton is not able to perform any processing contract for any reason, it may take us time to find a replacement processor. Such a delay could potentially put us in breach of our distribution agreement with Crinos or other contractual obligations into which we may enter, and could violate local laws requiring us to deliver the product to those in need.

**Our products could be subject to restrictions or withdrawal from the market and we may be subject to penalties if we fail to comply with regulatory requirements, if and when any of our product candidates are approved.**

Any product for which we obtain marketing approval, together with the manufacturing processes, post-approval commitments, and advertising and promotional activities for such product, will be subject to continued regulation by the FDA and other regulatory agencies. Later discovery of previously unknown problems with our products or their manufacture, or failure to comply with regulatory requirements, may result in:

. restrictions on such products or manufacturing processes;

. withdrawal of the products from the market;

voluntary or mandatory recalls;

fines;

suspension of regulatory approvals;

product seizures; or

injunctions or the imposition of civil or criminal penalties.

If we are slow to adapt, or unable to adapt, to changes in existing regulatory requirements or adoption of new regulatory requirements or policies, we may lose marketing approval for our products when and if any of them are approved.

**Our manufacturing facility is subject to continuing regulation by Italian authorities and is subject to inspection and regulation by the FDA and European regulatory. These authorities could force us to stop manufacturing our products if they determine that we are not complying with applicable regulations or require us to complete further costly alterations to our facility.**

In addition to researching and developing drugs, we also manufacture drugs, active pharmaceutical ingredients and other products at our manufacturing facility located near Como, Italy. This facility is subject to continuing regulation by the Italian Health Authority and other Italian regulatory authorities. During biannual inspections of our manufacturing facility by the Italian Health Authority in October 2004 and February 2007, the Italian Health Authority noted by way of observations certain minor deficiencies in regard to the operation of our facility. We corrected all of the October 2004 deficiencies and we have a plan on how to correct the February 2007 deficiencies. No penalties were imposed, our facility was not shut down and our manufacturing activities were not otherwise limited or curtailed as a result of the Italian Health Authorities' notation of these deficiencies.

Our manufacturing facility is subject to inspection and regulation by the FDA and European regulatory authorities with respect to manufacturing our product candidates for investigational use. Also, part of the process for obtaining approval from the FDA and European regulatory authorities for our product candidates is approval by those authorities of our manufacturing facility's compliance with current good manufacturing practices. After receiving initial approval, if any, the FDA or those European regulatory authorities will continue to inspect our manufacturing facility, including inspecting it unannounced, to confirm whether we are complying with the good manufacturing practices.

These regulators may require us to stop manufacturing our products and product candidates if they determine that we are not complying with applicable regulations or require us to complete costly alterations to our facility. We spent approximately €7.2 million in 2004 to substantially upgrade our facility in anticipation of the FDA and European regulatory approval process for our product candidates.

**If our third-party clinical trial vendors fail to comply with strict regulations, the clinical trials for our product candidates may be delayed or unsuccessful.**

We do not have the personnel capacity to conduct or manage all of the clinical trials that we intend for our product candidates. We rely on third parties to assist us in managing, monitoring and conducting most of our clinical trials. We have entered into and expect to continue to enter into clinical trial agreements with numerous centers in the United States, Canada and possibly other countries regarding our Phase III clinical trial of defibrotide to treat VOD with multiple-organ failure. We have entered into a co-sponsoring agreement with the European Group for Blood and Marrow Transplantation, regarding a Phase II/III clinical trial of defibrotide to prevent VOD in children in Europe.

We have entered into an agreement with MDS Pharma Services (U.S.) Inc. to perform clinical research project management services in connection with clinical trials conducted in the United States and agreements with KKS-UKT, GmbH and MDS Pharma Services SpA to provide such services for our clinical trials in Europe. If these third parties fail to comply with applicable regulations or do not adequately fulfill their obligations under the terms of our agreements with them, we may not be able to enter into alternative arrangements without undue delay or additional expenditures, and therefore the clinical trials for our product candidates may be delayed or unsuccessful.

Furthermore, the FDA can be expected to inspect some or all of the clinical sites participating in our clinical trials, or our third party vendors' sites, to determine if our clinical trials are being conducted according to current good clinical practices. If the FDA determines that our third-party vendors are not in compliance with applicable regulations, we may be required to delay, repeat or terminate the clinical trials. Any delay, repetition or termination of our clinical trials could materially harm our business.

**Our failure to raise additional funds in the future may delay the development of certain of our product candidates and sale of our products.**

The development and approval of our product candidates and the acquisition and development of additional products or product candidates by us, as well as the expansion of our research, regulatory and manufacturing operations, will require a commitment of substantial funds. Our future capital requirements are dependent upon many factors, some of which are beyond our control, including:

- the successful and continued development of our existing product candidates in preclinical and clinical testing;

- . the costs associated with protecting and expanding our patent and other intellectual property rights;
- . future payments, if any, received or made under existing or possible future collaborative arrangements;
- . the costs associated with building a future commercial infrastructure;
- . the timing of regulatory approvals needed to market our product candidates; and
- . market acceptance of our products.

We will need additional funds before we have completed the development of our product candidates. We have no committed sources of additional funds. We cannot assure you that funds will be available to us in the future on favorable terms, if at all. If adequate funds are not available to us on terms that we find acceptable, or at all, we may be required to delay, reduce the scope of, or eliminate research and development efforts or clinical trials on any or all of our product candidates. We may also be forced to curtail or restructure our operations, obtain funds by entering into arrangements with collaborators on unattractive terms or relinquish rights to certain technologies or product candidates that we would not otherwise relinquish in order to continue independent operations.

**We are currently dependent on third parties to market and distribute our products in finished dosage form, and we may continue to be dependent on third parties to market and distribute our products and product candidates.**

Our internal ability to handle the marketing and distribution functions for our current products and our product candidates is limited and we do not expect to develop the capability to provide marketing and distribution for all of our future products. Our long-term strategy includes either developing marketing and distribution capacity internally or entering into alliances with third parties to assist in the marketing and distribution of our product candidates. We have entered into an agreement with Sigma-Tau Pharmaceuticals, Inc. to market defibrotide to treat VOD in North America, Central America and South America and we may need to develop these capabilities internally or enter into similar agreements to market and distribute our other product candidates. We face, and will continue to face, intense competition from other companies for collaborative arrangements with pharmaceutical and biotechnology companies, for establishing relationships with academic and research institutions, for attracting investigators and sites capable of conducting our clinical trials and for licenses of proprietary technology. Moreover, these arrangements are complex to negotiate and time-consuming to document. Our future profitability will depend in large part on our ability to enter into effective marketing agreements and our product revenues will depend on those marketers' efforts, which may not be successful.

**If we are unable to attract and retain key personnel, we may be unable to successfully develop and commercialize our product candidates or otherwise manage our business effectively.**

We are highly dependent on our senior management, whose services are critical to the successful implementation of our product acquisition, development and regulatory strategies. If we lose their services or the services of one or more of the other members of our senior management or other key employees, our ability to successfully commercialize our product candidates or otherwise manage our business effectively could be seriously harmed.

Replacing key employees may be difficult and may take an extended period of time because of the limited number of individuals in our industry with the breadth of specific skills and experience required to develop, gain regulatory approval of and commercialize products successfully. Competition to hire from this limited pool is intense, and we may be unable to hire, train, retain or motivate these additional key personnel. In addition, under Italian law, we must pay our employees a severance amount based on their salary and years of service if they leave their employment, even if we terminate them for cause or they resign.

In order to expand our operations, we will need to hire additional personnel and add corporate functions that we currently do not have. Our ability to manage our operations and growth will require us to continue to improve our operational, financial and management controls and reporting system and procedures, or contract with third parties to provide these capabilities for us.

**All of our manufacturing capability is located in one facility that is vulnerable to natural disasters, telecommunication and information system failures, terrorism and similar problems, and we are not insured for losses caused by all of these incidents.**

We conduct all of our manufacturing operations in one facility located in Villa Guardia, near Como, Italy. This facility could be damaged by fire, floods, earthquake, power loss, telecommunication and information system failures, terrorism or similar events. Our insurance covers losses to our facility, including the buildings, machinery, electronic equipment and goods, for approximately €15 million, but does not insure against all of the losses listed above, including terrorism and some types of flooding. Although we believe that our insurance coverage is adequate for our current and proposed operations, there can be no guarantee that it will adequately compensate us for any losses that may occur. We are not insured for business interruption and we have no replacement manufacturing facility readily available.

**Our industry is highly competitive and subject to rapid technological changes. As a result, we may be unable to compete successfully or to develop innovative products, which could harm our business.**

Our industry is highly competitive and subject to significant and rapid technological change as researchers learn more about diseases and develop new technologies and treatments. While we are unaware of any other products or product candidates that treat or prevent VOD or the apoptosis that our product candidate oligotide is designed to treat, we believe that other companies have products or are currently developing products to treat some of the same disorders and diseases that our other product candidates are designed to treat. These companies include British Biotech plc, Boehringer Ingelheim, Millennium Pharmaceuticals, Inc., ARIAD Pharmaceuticals, Inc., Celgene Corp., Cell Genesys, Inc., Human Genome Sciences, Inc., Chugai Pharmaceutical Co., Ltd., Seattle Genetics, Inc., Entremed, Inc., Xcyte Therapies, Inc., Amgen, Inc., CuraGen Corporation and Aesgen, Inc.

Many of these competitors have substantially greater research and development capabilities and experience, and greater manufacturing, marketing and financial resources, than we do. In addition, these companies' products and product candidates are in more advanced stages of development than ours or have been approved for sale by the FDA and other regulatory agencies. As a result, these companies may be able to develop their product candidates faster than we can or establish their products in the market before we can. Their products may also prove to be more effective, safer or less costly than our product candidates. This could hurt our ability to recognize any significant revenues from our product candidates.

In May 2003, the FDA designated defibrotide as an orphan drug to treat VOD. In January 2007, the FDA designated defibrotide as an orphan drug to prevent VOD as well. If the FDA approves the New Drug Applications that we intend to file before approving a New Drug Application filed by anyone else for these uses of defibrotide, the orphan drug status will provide us with limited market exclusivity for seven years from the date of the FDA's approval of our New Drug Application. However, a marketing authorization may be granted for the same therapeutic indications to a similar medicinal product if we give our consent to the second applicant, we are unable to supply sufficient quantities of defibrotide, or the second applicant can establish in its application that the second medicinal product, although similar to defibrotide, is safer, more effective or otherwise clinically superior. In that case, our products would not have market exclusivity. Additionally, while we are not aware of any other company researching defibrotide for these uses, if another company does develop defibrotide for these uses, there is no guarantee that the FDA will approve our New Drug Application before approving anyone else's defibrotide product for these uses, in which case the first product approved would have market exclusivity and our products would not be eligible for approval until that exclusivity expires.

In July 2004, the European Commission designated defibrotide as an orphan medicinal product to both treat and prevent VOD. If the European regulators grant us a marketing authorization for those uses of defibrotide, we will have limited market exclusivity for those uses for ten years after the date of the approval. However, a marketing authorization may be granted for the same therapeutic indications to a similar medicinal product if we give our consent to the second applicant, we are unable to supply sufficient quantities of defibrotide, or the second applicant can establish in its application that the second medicinal product, although similar to defibrotide, is safer, more effective or otherwise clinically superior. In that case, our product would not have market exclusivity.

**If we are unable to adequately protect our intellectual property, our ability to compete could be impaired.**

Our long-term success largely depends on our ability to create and market competitive products and to protect those creations. Our pending patent applications, or those we may file in the future, may not result in patents being issued. Until a patent is issued, the claims covered by the patent may be narrowed or removed entirely, and therefore we may not obtain adequate patent protection. As a result, we may face unanticipated competition, or conclude that without patent rights the risk of bringing products to the market is too great, thus adversely affecting our operating results.

Because of the extensive time required for the development, testing and regulatory review of a product candidate, it is possible that before any of our product candidates can be approved for sale and commercialized, our relevant patent rights may expire or remain in force for only a short period following commercialization. Our issued United States patents expire between 2008 and 2019, and our United States patents for which we have submitted applications will expire between 2008 and 2026. Our United States patent covering defibrotide expires in 2010, and our U.S. patent covering the chemical process for extracting defibrotide expires in 2008. Our European patent covering both defibrotide and the chemical process for extracting defibrotide expired in April 2007. There may be no opportunities to extend these patents and thereby extend FDA and European approval exclusivity, in which case we could face increased competition for our products that are derived from defibrotide. Patent expiration could adversely affect our ability to protect future product development and, consequently, our operating results and financial position.



We also rely on trade secrets to protect our technology, especially where we do not believe patent protection is appropriate or obtainable. However, trade secrets are difficult to protect. While we use reasonable efforts to protect our trade secrets, our employees, consultants, contractors, outside scientific collaborators and other advisors may unintentionally or willfully disclose our information to competitors. Enforcing a claim that a third party illegally obtained and is using our trade secrets is expensive and time consuming, and the outcome is unpredictable. In addition, courts outside the United States are sometimes less willing to protect trade secrets. We intend to eventually license or sell our products in China, Korea and other countries which do not have the same level of protection of intellectual property rights as exists in the United States and Europe. Moreover, our competitors may independently develop equivalent knowledge, methods and know-how.

### **Risks Related to Ownership of the ADSs**

**Our largest shareholder exercises significant control over us, which may make it more difficult for you to elect or replace directors or management and approve or reject mergers and other important corporate events.**

Our largest shareholder, FinSirton, owned approximately 26.4% of our outstanding ordinary shares at March 31, 2007. Dr. Laura Ferro, who is our Chief Executive Officer and President and one of our directors, together with members of her family, controls FinSirton. As a result, Dr. Ferro and her family, through FinSirton, may substantially control the outcome of all matters requiring approval by our shareholders, including the election of directors and the approval of mergers or other important corporate events. They may exercise this ability in a manner that advances their best interests and not necessarily yours. In particular, Dr. Ferro may use her control over FinSirton's shareholdings in our company to resist any attempts to replace her or other members of our board of directors or management or approve or reject mergers and other important corporate events. Also, the concentration of our beneficial ownership may have the effect of delaying, deterring or preventing a change in our control, or may discourage bids for the ADSs or our ordinary shares at a premium over the market price of the ADSs. The significant concentration of share ownership may adversely affect the trading price of the ADSs due to investors' perception that conflicts of interest may exist or arise.

**If a significant number of ADSs are sold into the market, the market price of the ADSs could significantly decline, even if our business is doing well.**

Our outstanding ordinary shares, ordinary shares issuable upon exercise of warrants and ordinary shares issuable upon exercise of options are not subject to lock-up agreements. We have filed registration statements registering the resale of most of our outstanding ordinary shares and related ADSs and all of our ordinary shares and related ADSs issuable upon exercise of our outstanding warrants and options. Such registration and ultimate sale of the securities in the markets may adversely affect the market for the ADSs.

### **Risks Relating to Being an Italian Corporation**

**The process of seeking to raise additional funds is cumbersome, subject to the verification of a notary public as to compliance with our bylaws and applicable law and may require prior approval of our shareholders at an extraordinary meeting of shareholders.**

We were incorporated under the laws of the Republic of Italy. The principal laws and regulations that apply to our operations, those of Italy and the European Union, are different from those of the United States. In order to issue new equity or debt securities convertible into equity, with some exceptions, we must increase our authorized capital. In order to do so, our board must meet and resolve to recommend to our shareholders that they approve an amendment to our bylaws to increase our capital. Our shareholders must then approve that amendment to our bylaws in a formal meeting duly called, with the favorable vote of the required majority, which may change depending on whether the meeting is held on a first or subsequent call. These meetings take time to call. In addition, a notary public must verify

the compliance of the capital increase with our bylaws and applicable Italian law. Further, under Italian law, our existing shareholders and any holders of convertible securities sometimes have preemptive rights to acquire any such shares on the same terms as are approved concurrent with the new increase of the authorized capital pro rata based on their percentage interests in our company. Also, our shareholders can authorize the board of directors to increase our capital, but the board may exercise such power for only five years. If the authorized capital is not issued by the end of those five years, the authorized capital expires, and our board and shareholders would need to meet again to authorize a new capital increase. This means that any warrants we issue pursuant to this authorization would have a maximum term of 5 years, and, to the degree issued after the shareholder meeting, would have a term of less than 5 years. Our shareholders authorized our board of directors to increase our capital by up to €90 million of par value for ordinary shares and €10 million for ordinary shares issuable upon conversion of convertible bonds on April 28, 2006. Italian law also provides that if the shareholders vote to increase our capital, dissenting, abstaining or absent shareholders representing more than 5% of the outstanding shares of our company may, for a period of 90 days following the filing of the shareholders' approval with the Registry of Companies, challenge such capital increase if the increase was not in compliance with Italian law. In certain cases (if, for example, a shareholders' meeting was not called), any interested person may challenge the capital increase for a period of 180 days following the filing of the shareholders' approval with the Registry of Companies. Finally, once our shareholders authorize a capital increase, we must issue all of those authorized shares before the shareholders may authorize a new capital increase, unless the shareholders vote to cancel the previously authorized shares. These restrictions could limit our ability to issue new equity or convertible debt securities on a timely basis.

**We are restricted under Italian law as to the amount of debt securities that we may issue relative to our equity.**

Italian law provides that we may not issue debt securities for an amount exceeding twice the amount of the sum of the aggregate par value of our ordinary shares (which we call our capital), our legal reserve and any other disposable reserves appearing on our latest Italian GAAP balance sheet approved by our shareholders. The legal reserve is a reserve to which we allocate 5% of our Italian GAAP net income each year until it equals at least 20% of our Italian GAAP capital. One of the other reserves that we maintain on our balance sheet is a “share premium reserve”, meaning amounts paid for our ordinary shares in excess of the capital. At December 31, 2006, the sum of our capital, legal reserves and other reserves on our Italian GAAP balance sheet was €35.527 million. If we issue debt securities in the future, until such debt securities are repaid in full, we may not voluntarily reduce our capital or our reserves (such as by declaring dividends) if it results in the aggregate of the capital and reserves being less than half of the outstanding amount of the debt. If our equity is reduced by losses or otherwise such that the amount of the outstanding debt securities is more than twice the amount of our equity, some legal scholars are of the opinion that the ratio must be restored by a recapitalization of our company. If our equity is reduced, we could recapitalize by issuing new shares or having our shareholders contribute additional capital to our company, although there can be no assurance that we would be able to find purchasers for new shares or that any of our current shareholders would be willing to contribute additional capital.

**If we suffer losses that reduce our capital to less than €120 thousand, we would need to either recapitalize, change our form of entity or be liquidated.**

Italian law requires us to reduce our shareholders’ equity and, in particular, our capital (aggregate par value of our ordinary shares) to reflect on-going losses. We are also required to maintain a minimum capital of €120 thousand. At December 31, 2006, our Italian GAAP capital was approximately €11.774 million. If we suffer losses from operations that would reduce our capital to less than €120 thousand, then either we must increase our capital (which we could do by issuing new shares or having our shareholders contribute additional capital to our company) or convert the form of our company into an S.r.l., which has a lower capital requirement of €10 thousand. If we did not take these steps, a court could liquidate our company.

**You may not have the same voting rights as the holders of our ordinary shares and may not receive voting materials in time to be able to exercise your right to vote.**

Except as described in this annual report and in the deposit agreement for the ADSs, with our depositary, holders of the ADSs will not be able to exercise voting rights attaching to the ordinary shares evidenced by the ADSs on an individual basis. Holders of the ADSs will have the right to instruct the depositary as their representative to exercise the rights attached to the ordinary shares represented by the ADSs. You may not receive voting materials in time to instruct the depositary to vote, and it is possible that you, or persons who hold their ADSs through brokers, dealers or other third parties, will not have the opportunity to exercise a right to vote.

**You may not be able to participate in rights offerings and may experience dilution of your holdings as a result.**

We may from time to time distribute rights to our shareholders, including rights to acquire our securities. Under our deposit agreement for the ADSs with our depositary, the depositary will not offer those rights to ADS holders unless both the rights and the underlying securities to be distributed to ADS holders are either registered under the Securities Act of 1933, as amended, or exempt from registration under the Securities Act with respect to all holders of ADSs. We are under no obligation to file a registration statement with respect to any such rights or underlying securities or to endeavor to cause such a registration statement to be declared effective. In addition, we may not be able to take advantage of any exemptions from registration under the Securities Act. Accordingly, holders of our ADSs may be unable to participate in our rights offerings and may experience dilution in their holdings as a result.

**You may be subject to limitations on transfer of your ADSs.**

Your ADSs represented by the ADRs are transferable on the books of the depositary. However, the depositary may close its transfer books at any time or from time to time when it deems expedient in connection with the performance of its duties. In addition, the depositary may refuse to deliver, transfer or register transfers of ADSs generally when our books or the books of the depositary are closed, or at any time if we or the depositary deem it advisable to do so because of any requirement of law or of any government or governmental body, or under any provision of the deposit agreement, or for any other reason.

**Due to the differences between Italian and U.S. law, the depositary (on your behalf) may have fewer rights as a shareholder than you would if you were a shareholder of a U.S. company.**

We are incorporated under the laws of the Republic of Italy. As a result, the rights and obligations of our shareholders are governed by Italian law and our bylaws, and are in some ways different from those that apply to U.S. corporations. Some of these differences may result in the depositary (on your behalf) having fewer rights as a shareholder than you would if you were a shareholder of a U.S. corporation. We have presented a detailed comparison of the Italian laws applicable to our company against Delaware law in “*Item 10, Additional Information, Comparison of Italian and Delaware Corporate Laws.*” We compared the Italian laws applicable to our company against Delaware law because Delaware is the most common state of incorporation for U.S. public companies.

**Italian labor laws could impair our flexibility to restructure our business.**

In Italy, our employees are protected by various laws giving them, through local and central works councils, rights of consultation with respect to specific matters regarding their employers’ business and operations, including the downsizing or closure of facilities and employee terminations. These laws and the collective bargaining agreements to which we are subject could impair our flexibility if we need to restructure our business.

### **FORWARD-LOOKING STATEMENTS**

This annual report may contain forward-looking statements that involve substantial risks and uncertainties regarding future events or our future performance. When used in this annual report, the words “anticipate,” “believe,” “estimate,” “may,” “intent,” “continue,” “will,” “plan,” “intend,” and “expect” and similar expressions identify forward-looking statements. You should read statements that contain these words carefully because they discuss our future expectations, contain projections of our future results of operations or of our financial condition or state other “forward-looking” information. We believe that it is important to communicate our future expectations to our investors. Although we believe that our expectations reflected in any forward-looking statements are reasonable, these expectations may not be achieved. The factors listed in the section captioned “Risk Factors,” as well as any cautionary language included in this annual report or incorporated by reference, provide examples of risks, uncertainties and events that may cause our actual results to differ materially from the expectations we describe in our forward-looking statements. Before you invest in our ordinary shares, you should be aware that the occurrence of the events described in the “Risk Factors” section and elsewhere in this annual report could have a material adverse effect on our business, performance, operating results and financial condition. All subsequent written and oral forward-looking statements attributable to us or persons acting on our behalf are expressly qualified in their entirety by the cautionary statements set forth in this annual report. Except as required by federal securities laws, we are under no obligation to update any forward-looking statement, whether as a result of new information, future events, or otherwise.

You should rely only on the information contained in this annual report. We have not authorized anyone to provide you with information different from that contained in this annual report. The information contained in this annual report is accurate only as of the date of this annual report.

#### **ITEM 4. INFORMATION ON THE COMPANY**

##### **HISTORY AND DEVELOPMENT OF THE COMPANY**

We are a biopharmaceutical company engaged in the research, development and manufacture of drugs to treat and prevent a variety of vascular diseases and conditions related to cancer and cancer treatments. In 1986, our founding company received approval to sell in Italy a drug called “defibrotide” to treat deep vein thrombosis, and, in 1993, it received approval to manufacture and sell defibrotide to both treat and prevent all vascular disease with risk of thrombosis. Our primary focus is on development of defibrotide for other uses in the United States and Europe,

including to treat and prevent VOD and to treat multiple myeloma. In addition to defibrotide, we sell urokinase and calcium heparin, which are active pharmaceutical ingredients used to make other drugs, sulglicotide, which is intended to be used to treat peptic ulcers, and other miscellaneous pharmaceutical products. We will need to raise additional financing and/or enter into collaborative or licensing agreements in the future to fund continuing research and development for our product candidates.

In May 2006, we transitioned trading of our ADSs from the American Stock Exchange to the Nasdaq Global Market. In June 2006, we consummated a private placement of 1,551,125 ordinary shares together with warrants to purchase 620,450 ordinary shares for gross proceeds of \$17.667 million. In February 2007, we consummated a private placement of 2,354,000 ordinary shares for gross proceeds of \$47.480 million.

We have Italian, United States and international trademark rights in “Gentium,” United States and European Union trademark rights in “Gentide,” international and Italian trademark rights in “Oligotide” and Italian trademark rights to “Pharma Research” and “Dinelasi”. We also have a number of patent registrations issued and pending in Italy, the United States and other countries. This annual report also refers to brand names, trademarks, service marks, and trade names of other companies and organizations, and these brand names, trademarks, service marks, and trade names are the property of their respective holders.

This annual report contains market data and industry forecasts that were obtained from industry publications and third parties.

Our principal executive offices are located at Piazza XX Settembre 2, 22079 Villa Guardia (Como), Italy. Our telephone number is +39 031 385111. Our website is located at [www.gentium.it](http://www.gentium.it). The information contained on our website is not part of this annual report. Our registered agent for service of process is CT Corporation System, located at 111 Eighth Avenue, 13th Floor, New York, New York 10011, telephone number (212) 894-8940. Under our current bylaws, the duration of our company will expire on December 31, 2050. We are incorporated in the Republic of Italy and are governed by the Italian Civil Code.

### CAPITAL EXPENDITURES

The following table sets forth our capital expenditures, before retirements, for each year in the three-year period ended December 31, 2006. Most of our 2004 expenditures relate to the major upgrade of our facility we completed in 2004.

<i>(in thousands)</i>	For the Year Ended December 31,					
		2004		2005		2006
Land and buildings	€	1,244	€	109	€	7
Plant and machinery		3,690		642		793
Industrial equipment		169		50		254
Other		75		88		108
Leasehold improvements		-		-		46
Computer Software		-		123		259
Construction in progress		-		292		16
Total	€	5,178	€	1,304	€	1,483

All of these capital expenditures are in Italy. We are financing these expenditures from offerings of our ordinary shares and loans from third parties.

### BUSINESS OVERVIEW

We are a biopharmaceutical company engaged in the research, development and manufacture of drugs to treat and prevent a variety of vascular diseases and conditions related to cancer and cancer treatments. In 1986, our founding company received approval to sell in Italy a drug called “defibrotide” to treat deep vein thrombosis, and, in 1993, it received approval to manufacture and sell defibrotide to both treat and prevent all vascular disease with risk of thrombosis. In addition to defibrotide, we sell urokinase and calcium heparin, which are active pharmaceutical ingredients used to make other drugs, sulglicotide, which is intended to be used to treat peptic ulcers, and other miscellaneous pharmaceutical products.

We are building upon our extensive experience with defibrotide, which our predecessors discovered over 20 years ago, to develop it for a variety of additional uses, including to treat and prevent hepatic Venous Occlusive Disease, or VOD, a condition in which some of the veins in the liver are blocked as a result of toxic cancer treatments such as chemotherapy. A severe form of VOD with multiple-organ failure is a potentially devastating complication with a survival rate after 100 days of only approximately 20%, according to a historical trial conducted by Dana-Farber of 20 patients in 3 centers and our review of more than 200 published medical articles. Results from a Phase II clinical trial conducted at Harvard University’s Dana-Farber Cancer Institute of VOD with multiple-organ failure that concluded in December 2005 showed that the survival rate after 100 days was approximately 41% after treatment with defibrotide, although those results were based upon the treatment of only 150 patients and may not show the safety or effectiveness of the product candidate. We believe that there is no drug approved by the FDA or European regulators to treat or prevent VOD.

In May 2003, the FDA designated defibrotide as an orphan drug for use to treat VOD and made grants of \$525 thousand to Dana-Farber supporting research into the use of defibrotide to treat VOD with multiple-organ failure. In 2006, the FDA agreed to make additional grants aggregating up \$800 thousand to Dana-Farber supporting this research, which is being applied against the costs of our Phase III clinical trial of this product candidate that we would otherwise have to pay. We have supported this research with a grant of \$480 thousand to Dana-Farber. In January 2007, the FDA designated defibrotide as an orphan drug for prevention of VOD. In July 2004, the European Commission granted us orphan medicinal product designation for the use of defibrotide to both treat and prevent VOD.



Due to the historically low survival rate and lack of treatments for this condition, we believe there is an immediate need for a drug to treat VOD with multiple-organ failure. The FDA has a “fast track” designation program which is designed to facilitate the development and expedite their review of new drugs that are intended to treat serious or life-threatening conditions and that demonstrate the potential to address unmet medical needs. The FDA has approved our application for “fast track” designation for defibrotide to treat VOD with multiple-organ failure occurring after stem cell transplantation by means of injection. The FDA approval process for defibrotide for this use remains dependent upon the successful completion of clinical trials.

If we are successful in obtaining FDA approval and/or European regulatory approval for the initial use of defibrotide, we expect that the cash flows from operations generated by this use of defibrotide will contribute towards our working capital requirements and funding for the further development of defibrotide for other uses and our ultimate goal of FDA and European regulatory approval for other uses of defibrotide, including to prevent VOD and treat multiple myeloma. However, we will need to raise additional funds through debt and/or equity financings, or enter into licensing or similar collaborative arrangements, or both, in addition to cash flow we may generate from operations, to complete the development of these other uses of defibrotide.

If we are successful in bringing these advanced product candidates to market, we intend to use the cash flow from operations generated by them and our current products to continue to discover and develop additional uses of defibrotide, and to develop other drugs, such as oligotide which we believe may protect against damage to blood vessel wall cells caused by a particular cancer treatment and treat renal and kidney failure. These product candidates will be very expensive to develop, and it is likely that we will need to either raise additional funds through debt and/or equity financings, or enter into licensing or similar collaborative arrangements, or both, in addition to cash flow we may generate from operations, to complete these developments.

Our strategy is to continue to enter into collaborative and strategic agreements to assist us in the development, manufacturing and marketing of our products and product candidates. To date, we have licensed the right to market defibrotide to treat VOD in North America, Central America and South America, upon regulatory approval, to Sigma-Tau Pharmaceuticals, Inc., which markets drug treatments for rare conditions and diseases. Sigma-Tau Pharmaceuticals, Inc. is an United States subsidiary of Sigma Tau Finanziaria S.p.A., an international family of pharmaceutical companies.

We manufacture defibrotide, calcium heparin, sulglicotide and other miscellaneous pharmaceutical products at our manufacturing facility near Como, Italy, and we lease our affiliate Sirton’s facility to manufacture urokinase. Urokinase and calcium heparin are active pharmaceutical ingredients used to make other drugs. Sulglicotide is intended to be used to treat peptic ulcers. Almost all of our revenues during the past three years have come from sales of these products to Sirton. Our revenues from the sales of these products to date have been generated primarily in Italy and, to a small degree, in Korea and amounted to €3.1 million, €3.4 million and €4.1 million in 2004, 2005 and 2006, respectively. In 2004 we completed an upgrade to our facilities that cost approximately €7.2 million which we believe will facilitate the FDA and European regulatory approval process for our product candidates and enable our future production.

## **Market Overview**

The American Cancer Society estimated that in 2007 approximately 1.45 million new patients in the United States will be diagnosed with cancer and that there will be approximately 559,650 patient deaths in 2007 attributable to cancer. Cancer is a group of diseases characterized by uncontrolled growth and spread of abnormal cells. If the spread is not controlled, it can result in death. Most cancer patients will receive one or more of chemotherapy, radiation therapy and hormone therapy.

Chemotherapy, radiation therapy and hormone therapy treatments for cancer are used to target and kill cancer cells. In some cases, the therapy treats the cancer directly; in other cases, it is administered to prepare the patient for a stem cell or bone marrow transplant, which treats cancer or other diseases. Unfortunately, these therapies often have significant negative side effects, including damage to the cells that line the blood vessel walls. The damage to these cells can lead to various disorders of the vascular system. Some patients may not be able to continue with cancer treatments because they develop these vascular system complications; other patients considered at high risk of developing these vascular system complications may not receive optimal cancer treatments or any treatment at all.

**VOD.** One of the disorders of the vascular system that can result from chemotherapy, radiation therapy, hormone therapy and stem cell and bone marrow transplants is VOD. These therapies can cause extensive damage to the cells that line the walls of small veins in the liver. The body's natural response is to swell or clot the sites of injury, but this blocks or "occludes" the vein. This blockage of the veins is called "Veno-Occlusive Disease." VOD can cause damage to the liver and, in its severe form, leads to failure of the liver and other organs (multiple-organ failure), which usually results in death. The International Bone Marrow Transplant Registry estimates that approximately 45,000 people worldwide received blood and bone marrow transplants, which are types of stem cell transplants, in 2002. Based upon a historical trial conducted by Dana-Farber at three centers consisting of 20 patients and our review of more than 200 articles in the medical literature, we believe that approximately 20% of patients who undergo stem cell transplants develop VOD, approximately one-third of those patients progress to VOD with multiple-organ failure, and only approximately 20% of patients who develop VOD with multiple-organ failure survive more than 100 days after the stem cell transplant. VOD poses a severe risk to the victim's health. We believe that there are no FDA or European regulatory approved treatments at this time for VOD.

**Multiple myeloma.** Multiple myeloma is a cancer of the plasma cell. The American Cancer Society estimates that about 19,900 new cases of multiple myeloma will be diagnosed in the U.S. during 2007. Approximately 10,790 Americans are expected to die of multiple myeloma in 2007. The 5-year survival rate for patients with multiple myeloma for 1996 - 2002 was approximately 33%.

## Strategy

Our goal is to research, discover, develop and manufacture drugs derived from DNA extracted from natural sources and drugs that are synthetic oligonucleotides (molecules chemically similar to natural DNA) to treat and prevent a variety of vascular diseases and conditions related to cancer and cancer treatments. The primary elements of our strategy include:

- **Obtain FDA approval to use defibrotide to treat VOD with multiple-organ failure.** The Dana-Farber investigator presented the results from its Phase II clinical trial of defibrotide in patients with VOD with multiple-organ failure at the 47th Annual Meeting of the American Society of Hematology held on December 12, 2005. Results show that the survival rate after 100 days for the 150 patients treated was approximately 41% after 100 days as compared to the historical 100 day survival rate of approximately 20%. The FDA has approved our application for “fast track” designation for defibrotide to treat VOD with multiple-organ failure occurring after stem cell transplantation by means of injection. The FDA approval process for defibrotide for this use remains dependent upon the successful completion of clinical trials. We are sponsoring a Phase III clinical trial of defibrotide for this use in the United States.
- **Obtain European regulatory approval to use defibrotide to treat VOD with multiple-organ failure.** We believe that we may be able to use results from U.S. clinical trials of defibrotide to treat VOD with multiple-organ failure to apply for European regulatory approval of this product candidate without the need to replicate the clinical trials in Europe.
- **Expand approval of defibrotide to include prevention of VOD in Europe and the United States.** A preliminary study indicated that defibrotide may provide safe and effective protection against VOD. We are co-sponsoring a Phase II/III clinical trial for this use of defibrotide in children in Europe. We intend to start a Phase II/III clinical trial in the United States of this product candidate and of defibrotide for both the prevention of VOD and the prevention of transplant-associated micro-angiopathy in Europe upon completion of our Phase III clinical trial of defibrotide to treat VOD in the United States. If the clinical trials confirm the preliminary indications, we intend to pursue further development in Europe and the United States, and ultimately to apply for FDA and European regulatory approval for this use.
- **Expand approval of defibrotide to include treatment of multiple myeloma.** Based on preclinical studies conducted at the Jerome Lipper Multiple Myeloma Center at Harvard University’s Dana Farber Cancer Institute, a Phase I/II clinical study of defibrotide to treat multiple myeloma started in December 2005 which we expect will include approximately 10 cancer centers in Italy. The principal investigator for the clinical trial is Dr. Mario Boccadoro, M.D., Division of Hematology, University of Turin, Italy.
- **Discover and develop additional product candidates.** We and others have conducted preclinical studies of other uses of defibrotide and of other drugs in our pipeline. We plan to continue to develop these product candidates and to further expand the possible markets for our products and product candidates. If we are successful in bringing our initial product candidates to market, our cash flow from operations will fund some of the costs needed to develop these product candidates. These product candidates will be very expensive to develop, and we will need to either raise additional funds through debt and/or equity financings, or enter into strategic partnerships, or both, to complete these developments.

· **Increase our marketing capacity, including the use of strategic partnerships.** We have entered into a strategic license agreement with Sigma-Tau Pharmaceuticals, Inc. to market defibrotide to treat VOD in North America, Central America and South America upon regulatory approval and have granted Sigma-Tau Pharmaceuticals, Inc. a right of first refusal in those territories to market defibrotide to prevent VOD, to mobilize and increase the number of stem cells available for transplant and in non-intravenous forms. We intend to develop the capacity to market defibrotide in other jurisdictions and to market our other product candidates internally and/or pursue similar marketing agreements with other strategic partners.

### **Advanced Product Candidates**

We have extensive experience developing and manufacturing drugs derived from DNA extracted from natural sources and drugs that are synthetic oligonucleotides. Our most advanced product candidates utilize defibrotide, a drug which our founding company discovered and we currently manufacture and license to others for sale in Italy, to treat and prevent VOD and to treat multiple myeloma. Our most advanced product candidates and their stages of development are set forth below.

The FDA's designation of a product candidate as an orphan drug means that if the FDA approves our New Drug Application for that product candidate before approving a New Drug Application filed by anyone else for that product candidate, we will have limited market exclusivity for that product candidate for seven years from the date of the FDA's approval of our New Drug Application. If the FDA were to approve a New Drug Application filed by someone else for a product candidate prior to the FDA approving our New Drug Application for the product candidate, our ability to market the product candidate would be restricted by their orphan drug exclusivity. Similarly, the Commission of the European Communities designation of a product candidate as an orphan medicinal product means that if the European regulators grant us a marketing authorization for that product candidate, we will have limited market exclusivity for that product candidate for ten years after date of the approval. If the European regulators were to grant a marketing authorization filed by someone else for a product candidate prior to the European regulators granting a marketing authorization for the product candidate, our ability to market the product candidate could be restricted.

The following table sets forth the clinical trials of our advanced product candidates completed or being conducted to date.

<b>Product candidate</b>	<b>Orphan drug designation</b>	<b>Territory and status of clinical trial</b>	<b>Sponsor of clinical trial</b>	<b>Number of centers that participated or are expected to participate in clinical trial</b>	<b>Number of patients that participated or are expected to participate in clinical trial</b>
Defibrotide to treat VOD with multiple-organ failure	United States and Europe	Europe, "Compassionate use" study, results published in 2000	Committee of clinical investigators	5	40
		United States, Phase I/II, results published in 2002	Investigator at Dana-Farber Cancer Institute at Harvard University	11	88
		United States, Phase II, results published in December 2005	Investigator at Dana-Farber Cancer Institute at Harvard University	10	150
		United States, Canada and Israel, Phase III, currently enrolling patients	Gentium	35	160
Defibrotide to prevent VOD	United States and Europe	Switzerland, preliminary pilot clinical study completed	University Hospital of Geneva	1	104
				35	270

	Europe and Israel, Phase II/III, pediatric, currently enrolling patients	Gentium and European Group for Blood and Marrow Transplantation		
Defibrotide to treat multiple myeloma	United States, preclinical studies, completed	Investigator at Dana-Farber Cancer Institute at Harvard University	1	0 (study was in rodents)
	Italy, Phase I/II currently enrolling patients	Investigator at the University of Turin	10	24 in the Phase I trial and 50 in the Phase II trial

### ***Defibrotide to treat VOD with multiple-organ failure***

Our leading product candidate is defibrotide to treat VOD, and in particular VOD with multiple-organ failure. In May 2003, the FDA designated defibrotide as an orphan drug to treat VOD. In July 2004, the Commission of the European Communities designated defibrotide to treat VOD as an orphan medicinal product, which is similar to being designated an orphan drug by the FDA.

In 2000, the British Journal of Hematology published the results of a 40 patient “compassionate use” study of defibrotide to treat VOD conducted in 19 centers in Europe from December 1997 to June 1999. Nineteen patients, or 47.5%, survived more than 100 days. The publication indicated that four of the 19 patients who survived more than 100 days subsequently died. Twenty-eight patients were judged likely to die or had evidence of multiple-organ failure, and 10, or 36%, of these patients survived more than 100 days. The 100 day survival rate is a milestone generally used to determine transplant success. This publication stated that the defibrotide was generally safely administered with no significant side-effects.

In 2002, the results from 88 patients with VOD with multiple-organ failure following stem cell transplants who were treated with defibrotide from March 1995 to May 2001 were published in *Blood*, the Journal of the American Society of Hematology. This publication reported data on 19 patients treated under individual Investigational New Drug Applications and on a subsequent 69 patient multi-center Phase I/II clinical trial that was conducted under an Investigational New Drug Application filed by a Dana-Farber investigator. The primary goal of the trial was the assessment of the potential effectiveness of the drug and its side effects, if any. All patients in the clinical trial received defibrotide on an emergency basis. This publication stated that 31 patients, or 35.2%, of those patients survived at least 100 days after stem cell transplant with minimal adverse side effects, primarily transient mild hypotension. Thirteen of those 31 patients who had survived more than 100 days had died by October 2001, the latest date for which survival information was available. No mortality from VOD or other toxicity related to the cancer treatment was seen more than 134 days after treatment with defibrotide, with the most common cause of later death being relapse.

The Dana-Farber investigator also sponsored, under its Investigational New Drug Application, a Phase II clinical trial in the United States of defibrotide which enrolled 150 stem cell transplant patients with VOD with multiple-organ failure at eight cancer centers. This trial was funded by us and \$525 thousand in grants from the orphan drug division of the FDA. The purpose of this trial was to evaluate the effectiveness of this drug, including the effect of the drug on the survival rate of patients with VOD with multiple-organ failure, the effective dosage and potential adverse side effects.

The Dana-Farber investigator presented the results from this Phase II clinical trial at the 47th Annual Meeting of the American Society of Hematology on December 12, 2005. Results show that the survival rate after 100 days for the 150 patients treated was approximately 41% after 100 days with minimal adverse events as compared to the historical 100 day survival rate of approximately 20%. We do not have information about the survival rate after 100 days.

The FDA has approved our application for “fast track” designation for defibrotide to treat VOD with multiple-organ failure occurring after stem cell transplantation by means of injection. The FDA approval process for defibrotide for this use remains dependent upon the successful completion of clinical trials. Fast track designation may shorten and facilitate the approval process.

We started a historically controlled Phase III clinical trial in the United States, Canada and Israel for this use in December 2005 in patients with severe VOD. We are the sponsor and will conduct the Phase III clinical trial and any additional clinical trials required by the FDA under our own Investigational New Drug Application that we submitted to the FDA in December 2003. Sponsoring and conducting the additional clinical trials under our own Investigational New Drug Application will allow us to communicate directly with the FDA regarding the development of this drug for marketing approval. In 2006, the FDA agreed to make additional grants aggregating up to \$800 thousand to Dana-Farber supporting this research, which is being applied against the costs of our Phase III clinical trial of this product candidate that we would otherwise have to pay.

Conorzio Mario Negri Sud had been conducting a multi-center Phase II/III clinical trial in Europe and Israel of defibrotide to treat VOD after stem cell transplants that was sponsored by a committee of clinical investigators. The trial was scheduled to include approximately 340 patients, of which approximately 60 had been enrolled at December 31, 2004. We were funding the costs of this clinical trial. The committee of clinical investigators cancelled the trial in October 2005 due to a lack of patients enrolled in the trial. This trial included a randomly selected control group. We believe that patients may have been reluctant to enroll due to the possibility of being placed in the control group and not receiving treatment.

### ***Defibrotide to prevent VOD***

We believe there is a significant market opportunity for defibrotide to prevent VOD for patients at risk of developing VOD. Based on our experience researching VOD, we believe that many recipients of high doses of chemotherapy, radiation therapy or hormone therapy or of therapies that prepare for stem cell transplants have an elevated risk of developing VOD. In January 2007, the FDA designated defibrotide as an orphan drug to prevent VOD. In July 2004, the Commission of European communities designated defibrotide to prevent VOD, an orphan medicinal product, which is similar to being designated an orphan drug by the FDA. We believe that there are no FDA or European regulatory approved drugs to prevent VOD at this time.

A preliminary pilot clinical study in Switzerland by the University Hospital of Geneva on defibrotide, in patients at high risk of VOD, suggested that defibrotide may provide effective and safe prevention against VOD. The study tested patients who received stem cell transplants. None of 52 successive transplant patients who received defibrotide as a preventative agent developed VOD. By comparison, 10 of 52 patients who underwent transplants in the same center before the study developed VOD, which was fatal in three cases. The study report indicated that mild to moderate toxicity such as mild nausea, fever and abdominal cramps was documented, although the report stated that it was

difficult to determine whether the toxicity was directly attributable to the defibrotide, the chemotherapy that preceded the stem cell transplants or other drugs used during the stem cell transplants. The study report did not indicate the number of patients who experienced this toxicity.

We are co-sponsoring with the European Group for Blood and Marrow Transplantation, a not-for-profit scientific society, a Phase II/III clinical trial in Europe and Israel of defibrotide to prevent VOD in children. We expect this study, which began enrollment in the first quarter of 2006, to include 270 patients enrolled by several centers in Europe, who will randomly receive either defibrotide or no treatment.



We also plan to co-sponsor with the European Group for Blood and Marrow Transplantation a second Phase II/III clinical trial in Europe of defibrotide to prevent VOD and transplant associated microangiopathy in adults and sponsor a Phase II/III clinical trial of defibrotide to prevent VOD in the United States upon completion of our Phase III clinical trial of defibrotide to treat VOD in the United States.

### ***Defibrotide to treat multiple myeloma***

Preclinical studies conducted by the Myeloma Center of the Dana-Farber Cancer Institute at Harvard University on human multiple myeloma in rodents suggests that defibrotide's effect on the cells of blood vessel walls may help increase the effectiveness of other treatments for multiple myeloma. In particular, the overall survival rate of rodents with human multiple myeloma increased and tumor volume decreased when the animals were administered defibrotide in combination with other chemotherapy agents. The Myeloma Center of Dana-Farber is conducting additional preclinical studies of defibrotide's effects on multiple myeloma.

An independent Phase I/II clinical study of defibrotide to treat multiple myeloma in combination with melphalan, prednisone, and thalidomide (MPT) started in December 2005 which we expect to include approximately 10 cancer centers in Italy. The principal investigator for the clinical trial is Dr. Mario Boccadoro, M.D., Division of Hematology, University of Turin, Italy. We will pay part of the costs of this trial. The trial is scheduled to be a dose-escalating, multi-center, non-comparative, open label study designed to assess the safety and the efficacy of Defibrotide with MPT regimen as a salvage treatment in advanced refractory MM patients. The Phase I component of the trial will combine oral MPT with escalating doses of defibrotide to determine the maximum tolerated dosage of defibrotide combined with MPT in 24 patients (three cohorts of eight patients). In the Phase II component of the trial, the oral MPT regimen will be combined with the maximum tolerated dosage of defibrotide and administered to consecutive patients to assess response rate and clinical efficacy.

### **Additional Product Candidate - Oligotide**

We are developing oligotide, another product derived from natural DNA, to further expand our possible markets. One particular chemotherapy agent, fludarabine, is used to treat chronic lymphocytic leukemia. Fludarabine interferes with the growth of cancer cells, but it also causes damage, specifically apoptosis (a series of events in a cell that leads to its death), to blood vessel wall cells, which is an undesirable toxic effect of the chemotherapy. Researchers at the University of Regensburg, Germany, performed preclinical studies showing that oligotide, when used in combination with fludarabine, reduced the level of apoptosis in the cells of blood vessel walls to approximately the same level normally found in cells that have not been treated with fludarabine. We believe there is a potential market for oligotide to be used in conjunction with fludarabine and other cancer therapies to reduce the undesirable toxic effects of these cancer therapies. We may conduct further research on oligotide to investigate its effectiveness in protecting blood vessel cell walls against cancer therapies. In addition, we may explore oligotide's ability to treat and/or prevent renal failure.

If we are successful in bringing our advanced product candidates to market, we intend to use our cash flow from operations generated by them and our current products to continue to fund some of the costs needed to develop oligotide. Oligotide will be very expensive to develop, and we will need to either raise additional funds through debt and/or equity financings, or enter into strategic partnerships, or both, to complete this development.

### **Current Products**

Our current products are all pharmaceutical products. The principal market for these products is Italy. In 2004, 7.8% of our product sales were in Korea, and in 2006, 7.5% of our product sales were in Korea. Our revenues from the sales of our current products were €5.9 million, €6.5 million, €3.1 million, €3.4 million and €4.1 million in 2002, 2003, 2004, 2005 and 2006, respectively. We and our predecessors have manufactured defibrotide since 1986 using a

manufacturing process on which we hold a U.S. patent and a European patent granted in 1991. In addition to defibrotide, we manufacture and sell urokinase and calcium heparin, which are active pharmaceutical ingredients used to make other drugs, sulglicotide, which is intended to treat peptic ulcers, and other miscellaneous pharmaceutical products.

***Defibrotide***

Currently, we manufacture defibrotide for Sirton, our affiliate. Sirton focuses on processing the defibrotide for either oral administration or intra-venous administration and sells the finished products to Crinos. Crinos markets defibrotide in Italy to both treat and prevent vascular disease with risk of thrombosis under a semi-exclusive license agreement. We have the right to grant a second license in Italy but only to a third party that has been expressly approved by Crinos.

***Urokinase***

Urokinase is made from human urine and has the potential to dissolve fibrin clots and, as such, is used to treat various vascular disorders such as deep vein thrombosis and pulmonary embolisms. We sell urokinase to Sirton, who uses it as an ingredient in the manufacture of generic drugs. Sirton sells the final formulated generic drugs to other companies, which then sell the drugs to hospitals and pharmacies.

### ***Heparin Calcium***

Heparin calcium is made from pig intestines and prevents the blood from clotting. Decreasing clot formation diminishes the likelihood of strokes and heart attacks. Heparin calcium has numerous uses including the treatment of certain types of lung, blood vessel, and heart disorders, and administration during or after certain types of surgery, such as open heart and bypass surgeries. Other uses include the flushing of catheters and other medical equipment. Heparin calcium and its salts are also part of many topical preparations to treat various inflammatory disorders. We sell heparin calcium to Sirton, who uses it as an ingredient in the manufacture of generic drugs. Sirton sells the final formulated generic drugs to other companies, which then sell the drugs to hospitals and pharmacies.

### ***Sulglycotide***

Sulglycotide is developed from pig intestines and appears to have ulcer healing and gastrointestinal protective properties. The effects of this drug have prompted us to commission a preclinical investigation by Epistem Ltd., an United Kingdom contract research organization specializing in studies of mucositis caused by anticancer or radiation therapies, into its function in potential prevention and treatment of mucous membrane damage. We also sell sulglycotide to Sirton for use in contract manufacturing of Gliptide, a drug marketed in Italy to treat peptic ulcers. In 2004, we sold sulglycotide to Samil, a Korean company, for use in manufacturing a product of Samil's in Korea. Samil used this supply to manufacture its product for launch and marketing activities. In 2006, we sold 818kg of sulglycotide to Samil. As April 30, 2007, we have received purchase orders from Samil for up to 1.560 kg of sulglycotide in 2007.

### **Seasonality**

Seasonality does not affect our business, except that historically we had higher product sales during the second and fourth quarters. The timing of manufacturer orders can cause variability in sales.

### **Regulatory Matters**

#### ***Overview***

The preclinical and clinical testing, manufacture, labeling, storage, distribution, promotion, sale, import and export, reporting and record-keeping of our product candidates are subject to extensive regulation by governmental authorities in the United States, principally the FDA and corresponding state agencies, and regulatory agencies in foreign countries.

Non-compliance with applicable regulatory requirements can result in, among other things, injunctions, seizure of products, total or partial suspension of product manufacturing and marketing, failure of the government to grant approval, withdrawal of marketing approvals, civil penalty actions and criminal prosecution. Except as discussed below, we believe that we are in substantial compliance in all material respects with each of the currently applicable laws, rules and regulations mentioned in this section. During biannual inspections of our manufacturing facility by the Italian Health Authority in October 2004 and February 2007, the Italian Health Authority noted by way of observations certain deficiencies in regard to the operation of our facility. We have corrected all of the October 2004 deficiencies, and have a plan to correct the February 2007 deficiencies. Also, a regional Italian regulatory inspector, during an April 2005 inspection of our manufacturing facility, requested that we install an exhaust vent on one of our machines. We have installed this device. In order to obtain FDA approval for the sale of any of our product candidates, the FDA must determine that this facility meets their current good manufacturing practices, or GMP, including requirements for equipment verification and validation of our manufacturing and cleaning processes. The FDA has not yet inspected our facility, but we have recently completed an approximately €7.2 million major overhaul and upgrade in anticipation of such an inspection. We are not aware of any other situation that could be characterized as an incidence of non-compliance in the last three years.

***United States Regulatory Approval***

FDA regulations require us to undertake a long and rigorous process before any of our product candidates may be marketed or sold in the United States. This regulatory process typically includes the following general steps:

- our performance of satisfactory preclinical laboratory and animal studies under the FDA's good laboratory practices regulations;
- our obtaining the approval of independent Institutional Review Boards at each clinical site to protect the welfare and rights of human subjects in clinical trials;
- our submission to and acceptance by the FDA of an Investigational New Drug Application (IND) which must become effective before human clinical trials may begin in the United States;
- our successful completion of a series of adequate and well-controlled human clinical trials to establish the safety, purity, potency and effectiveness of any product candidate for its intended use;

- our submission to, and review and approval by, the FDA of a marketing application prior to any commercial sale or shipment of a product; and
- our development and demonstration of manufacturing processes which conform to FDA-mandated current good manufacturing practices.

This process requires a substantial amount of time and financial resources. In 2002, the FDA announced a reorganization that has resulted in the shift of the oversight and approval process for certain therapeutic biologic drugs and the related staff from the Center for Biologics Evaluation and Research to the Center for Drug Evaluation and Research. Our initial product candidate, defibrotide to treat VOD with multiple-organ failure, is being regulated through the latter.

### *Preclinical Testing*

Preclinical tests generally include laboratory evaluation of a product candidate, its chemistry, formulation, stability and toxicity, as well as certain animal studies to assess its potential safety and effectiveness. We must submit the results of these preclinical tests, together with manufacturing information, analytical data and the clinical trial protocol, to the FDA as part of an Investigational New Drug Application, which must become effective before we may begin any human clinical trials. An application automatically becomes effective 30 days after receipt by the FDA, unless the FDA, within this 30-day time period, raises concerns or questions about the intended conduct of the trials and imposes what is referred to as a clinical hold. If one or more of our products is placed on clinical hold, we would be required to resolve any outstanding issues to the satisfaction of the FDA before we could begin clinical trials. Preclinical studies generally take several years to complete, and there is no guarantee that an Investigational New Drug Application based on those studies will become effective, allowing clinical testing to begin.

### *Clinical Trials*

In addition to FDA review of an application, each clinical institution that desires to participate in a proposed clinical trial must have the clinical protocol reviewed and approved by an independent Institutional Review Board. The independent Institutional Review Boards consider, among other things, ethical factors, informed consent and the selection and safety of human subjects. Clinical trials must be conducted in accordance with the FDA's good clinical practices requirements. Prior to commencement of each clinical trial, the sponsor must submit to the FDA a clinical plan, or protocol, accompanied by the approval of the committee responsible for overseeing clinical trials at one of the clinical trial sites. The FDA, and/or the Institutional Review Board at each institution at which a clinical trial is being performed, may order the temporary or permanent discontinuation of a clinical trial at any time if it believes that the clinical trial is not being conducted in accordance with FDA requirements or presents an unacceptable risk to the clinical trial patients.

Human clinical trials are typically conducted in three sequential phases that may overlap, including the following:

#### Phase I

In Phase I clinical trials, a product candidate is typically given to either healthy people or patients with the medical condition for which the new drug is intended to be used. The main purpose of the trial is to assess a product candidate's safety and the ability of the human body to tolerate the product candidate, and may also assess the dosage, absorption, distribution, excretion and metabolism of the product candidate.

#### Phase II

During Phase II, a product candidate is given to a limited number of patients with the disease or medical condition for which it is intended to be used in order to:

- further identify any possible adverse side effects and safety risks;
- assess the preliminary or potential effectiveness of the product candidate for the specific targeted disease or medical condition; and
- assess dosage tolerance and determine the optimal dose for a Phase III trial.

### Phase III

If and when one or more Phase II trials demonstrate that a specific dose or range of doses of a product candidate is likely to be effective and has an acceptable safety profile, one or more Phase III trials are generally undertaken to demonstrate clinical effectiveness and to further test for safety in an expanded patient population with the goal of evaluating the overall risk-benefit relationship of the product candidate. The successful demonstration of clinical effectiveness and safety in one or more Phase III trials is typically a prerequisite to the filing of an application for FDA approval of a product candidate.

After approval, the FDA may also require a Phase IV clinical trial to continue to monitor the safety and effectiveness of the product candidate.

The sponsor must submit to the FDA the results of the pre-clinical and clinical trials, together with, among other things, detailed information on the manufacturing and composition of the product, in the form of New Drug Application or a Biologics License Application. Once the submission has been accepted for filing, the FDA has 180 days to review the application and respond to the applicant. The review process is often significantly extended by FDA requests for additional information or clarification.

#### *Post-Approval Regulations*

If a product candidate receives regulatory approval, the approval is typically limited to specific clinical uses. Subsequent discovery of previously unknown problems with a product may result in restrictions on its use or even complete withdrawal of the product from the market. Any FDA-approved products manufactured or distributed by us are subject to continuing regulation by the FDA, including record-keeping requirements and reporting of adverse events or experiences. Drug manufacturers and their subcontractors are required to register their establishments with the FDA and state agencies, and are subject to periodic inspections by the FDA and state agencies for compliance with current good manufacturing practices, or GMPs, which impose rigorous procedural and documentation requirements upon us and our contract manufacturers. Failure to comply with these requirements may result in, among other things, total or partial suspension of production activities, failure of the FDA to grant approval for marketing, and withdrawal, suspension, or revocation of marketing approvals.

If the FDA approves one or more of our product candidates, we and our contract manufacturers must provide certain updated safety and effectiveness information. Product changes, as well as changes in the manufacturing process or facilities where the manufacturing occurs or other post-approval changes, may necessitate additional FDA review and approval. The labeling, advertising, promotion, marketing and distribution of a drug or biologic product also must be in compliance with FDA requirements which include, among others, standards and regulations for direct-to-consumer advertising, communication of information relating to off-label uses, industry sponsored scientific and educational activities and promotional activities involving the Internet. The FDA has very broad enforcement authority, and failure to abide by these regulations can result in penalties, including the issuance of a warning letter directing a company to correct deviations from regulatory standards and enforcement actions that can include seizures, fines, injunctions and criminal prosecution.

#### *Fast track and orphan drug designation*

The FDA has developed “fast track” policies, which provide the potential for expedited review of an application. However, there is no assurance that the FDA will, in fact, accelerate the review process for a fast track product candidate. Fast track status is provided only for new and novel therapies that are intended to treat persons with life-threatening and severely debilitating diseases, where there is a defined unmet medical need, especially where no satisfactory alternative therapy exists or the new therapy is significantly superior to alternative therapies. During the development of product candidates that qualify for this status, the FDA may expedite consultations and reviews of these experimental therapies. Furthermore, an accelerated approval process is potentially available to product candidates that have been studied for their safety and effectiveness in treating serious or life-threatening illnesses. The FDA can base approval of a marketing application for a fast track product on an effect on a clinical endpoint, or on a surrogate endpoint that is reasonably likely to predict clinical benefit. The FDA may condition the approval of an application for certain fast track products on additional post-approval studies to validate the surrogate endpoint or confirm the effect on the clinical endpoint. Fast track status also provides the potential for a product candidate to have a “priority review.” A priority review allows for portions of the application to be submitted to the FDA for review prior to the completion of the entire application, which could result in a reduction in the length of time it would otherwise take the FDA to complete its review of the application. Fast track status may be revoked by the FDA at any time if the clinical results of a trial fail to continue to support the assertion that the respective product candidate has the potential to address an unmet medical need. A product approved under a “fast track” designation is subject to expedited

withdrawal procedures and to enhanced scrutiny by the FDA of promotional materials.

The FDA may grant orphan drug status to drugs intended to treat a “rare disease or condition,” which is generally a disease or condition that affects fewer than 200,000 individuals in the United States. If and when the FDA grants orphan drug status, the generic name and trade name of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. Aside from guidance concerning the non-clinical laboratory studies and clinical investigations necessary for approval of the application, orphan drug status does not convey any advantage in, or shorten the duration of, the regulatory review and approval process. The FDA may grant orphan drug designations to multiple competing product candidates targeting the same uses. A product that has been designated as an orphan drug that subsequently receives the first FDA approval for the designated orphan use is entitled to orphan drug exclusivity, which means the FDA may not approve any other applications to market the same drug for the same indication, except in very limited circumstances, for seven years from the date of FDA approval. Orphan drug status may also provide certain tax benefits. Finally, the FDA may fund the development of orphan drugs through its grants program for clinical studies.

The FDA has designated defibrotide as an orphan drug both to treat VOD and to prevent VOD and has provided funding for clinical studies for defibrotide to treat VOD. The FDA has approved the Company’s application for “fast track” designation for defibrotide to treat VOD with multiple-organ failure occurring after stem cell transplantation by means of injection. The FDA approval process for defibrotide for this use remains dependent upon the successful completion of clinical trials. If our other product candidates meet the criteria, we may also apply for orphan drug status and fast track status for such products.



### *Market Exclusivity*

In addition to orphan drug exclusivity, a product regulated by the FDA as a “new drug” is potentially entitled to non-patent and/or patent exclusivity under the FDCA against a third party obtaining an abbreviated approval of a generic product during the exclusivity period. An abbreviated approval allows an applicant to obtain FDA approval without generating, or obtaining a right of reference to, the basic safety and effectiveness data necessary to support the initial approval of the drug product or active ingredient. In the case of a new chemical entity (an active ingredient which has not been previously approved with respect to any drug product) non-patent exclusivity precludes an applicant for abbreviated approval from submitting an abbreviated application until five years after the approval of the new chemical entity. In the case of any drug substance (active ingredient), drug product (formulation and composition) and method of use patents listed with the FDA, patent exclusivity under the FDCA precludes FDA from granting effective approval of an abbreviated application of a generic product until the relevant patent(s) expire, unless the abbreviated applicant certifies that the relevant listed patents are invalid, not infringed or unenforceable and the NDA/patent holder does not bring an infringement action within 45 days of receipt of notification of the certification or an infringement action is brought within 45 days and a court determines that the relevant patent(s) are invalid, not infringed or un-enforceable or 30 months have elapsed without a court decision of infringement.

### *User Fees*

A New Drug Application for a prescription drug product that has been designated as an orphan drug is not subject to the payment of user fees to the FDA unless the application includes as indication for other than a orphan indication.

A supplement proposing to include a new indication for a designated orphan disease or condition in an application is also not subject to a user fee, if the drug has been designated an orphan drug with regard to the indication proposed in such supplement.

There is no specific exemption for orphan drug products from annual product and establishment fees. However, sponsors of orphan drugs can request a waiver of such fees on hardship or other grounds.

Other federal legislation may affect our ability to obtain certain health information in conjunction with our research activities. The Health Insurance Portability and Accountability Act of 1996, or HIPAA, mandates, among other things, the adoption of standards designed to safeguard the privacy and security of individually identifiable health information. In relevant part, the U.S. Department of Health and Human Services, or HHS, has released two rules to date mandating the use of new standards with respect to such health information. The first rule imposes new standards relating to the privacy of individually identifiable health information. These standards restrict the manner and circumstances under which covered entities may use and disclose protected health information so as to protect the privacy of that information. The second rule released by HHS establishes minimum standards for the security of electronic health information. While we do not believe we are directly regulated as a covered entity under HIPAA, the HIPAA standards impose requirements on covered entities conducting research activities regarding the use and disclosure of individually identifiable health information collected in the course of conducting the research. As a result, unless they meet these HIPAA requirements, covered entities conducting clinical trials for us may not be able to share with us any results from clinical trials that include such health information.

### *Foreign Regulatory Approval*

Outside of the United States, our ability to market our product candidates will also be contingent upon our receiving marketing authorizations from the appropriate foreign regulatory authorities whether or not FDA approval has been obtained. The foreign regulatory approval process in most industrialized countries generally includes risks that are similar with the FDA approval process we have described herein. The requirements governing conduct of clinical

trials and marketing authorizations, and the time required to obtain requisite approvals may vary widely from country to country and differ from that required for FDA approval.

*European Union Regulatory Approval*

Under the current European Union regulatory system, applications for marketing authorizations may be submitted either under a centralized or decentralized procedure. The centralized procedure (which is compulsory for certain categories of drugs) provides for the grant of a single marketing authorization that is valid for all European Union member states. The decentralized procedure provides for mutual recognition of national approval decisions. Under this procedure, the holder of a national marketing authorization that is obtained in accordance with the procedure and requirements applicable in the member state concerned may submit an application to the remaining member states. Within 90 days of receiving the applications and assessment report, each member state must decide whether to recognize approval. The mutual recognition process results in separate national marketing authorizations in the reference member state and each concerned member state.

### The centralized procedure

An applicant under the centralized procedure must be a person who is domiciled in the European Union or an entity established in the European Union. The applicant must file a preliminary request containing the information regarding the product candidate, including its description and the location of the production plant, as well as the payment of the application fees. The European Agency for the Evaluation of Medicinal Products (an European Union statutory entity) formally evaluates the preliminary request and indicates either an initial approval to review a full application or a rejection. If the European Agency indicates an initial approval to review a full application, the applicant must submit the application to the European Agency. This application must indicate certain specific information regarding the product candidate, including the composition (quality and quantity) of all the substances contained in the product, therapeutic indications and adverse events, modalities of use, the results of physical, chemical, biological and microbiological tests, pharmacological and toxicity tests, clinical tests, a description of production and related control procedures, a summary of the characteristics of the product as required by the European legislation and samples of labels and information to consumers. The applicant must also file copies of marketing authorizations obtained, applications filed and denials received for the same product in other countries, and must prove that the manufacturer of the product candidate is duly authorized to produce it in its country.

The European Agency (through its internal Committee for Proprietary Medicinal Products) examines the documents and information filed and may carry out technical tests regarding the product, request information from the member state concerned with regard to the manufacturer of the product candidate and, when it deems necessary, inspect the manufacturing facility in order to verify that the manufacturing facility is consistent with the specifications of the product candidate, as indicated in the application.

The Committee generates and submits its final opinion to the European Commission, the member states and the applicant. The Commission then issues its decision, which is binding on all member states. However, if the Commission approves the application, member states still have authority to determine the pricing of the product in their territories before it can be actually marketed.

The European Agency may reject the application if the Agency decides that the quality, safety and effectiveness of the product candidate have not been adequately and sufficiently proved by the applicant, or if the information and documents filed are incomplete, or where the labeling and packaging information proposed by the applicant do not comply with the relevant European rules.

The European Agency has also established an accelerated evaluation procedure applying to product candidates aimed at serious diseases or conditions for which no suitable therapy exists, if it is possible to predict a substantial beneficial effect for patients.

The marketing authorization is valid for five years and may be renewed, upon application, for further five year terms. After the issue of the authorization the holder must constantly take into consideration scientific and technical progress so that the product is manufactured and controlled in accordance with scientific methods generally accepted.

We plan to apply for approvals for our product candidates under the centralized procedure. We believe that the centralized procedure will result in a quicker approval of our product candidates than the decentralized procedure due to the fact that we intend to market our product candidates in many European Union member states, rather than just one.

### The decentralized procedure

The decentralized procedure provides for mutual recognition of national approval decisions. Under this procedure, the holder of a national marketing authorization—obtained in accordance with the procedure and requirements applicable in the member state concerned (see the description below for Italy)—may submit an application to the remaining member states. Within 90 days of receiving the applications and assessment report, each member state must decide whether to recognize approval. The mutual recognition process results in separate national marketing authorizations in the reference member state and each concerned member state.

An application under the decentralized procedure begins with the applicant obtaining a national marketing authorization. An example of the process for obtaining a national marketing authorization in Italy is set forth below. The applicant then submits an application for authorization in other member states and the European Agency. If any of the member states refuses to recognize the authorization by the original member state, the matter is deferred to arbitration proceedings, unless the applicant withdraws its request in the member state refusing recognition. The characteristics of the product in the new applications must be identical to those approved in the original member state.

#### *Italian Regulatory Approval*

An application for marketing authorization in Italy must be filed with the competent office of the Italian Agency for the Evaluation of Medical Products (“AIFA”) and must contain certain specific information, including the composition (quality and quantity) of all the substances contained in the product, therapeutic indications and adverse events, modalities of use, the results of physical, chemical, biological and microbiological tests, pharmacological and toxicity tests, clinical tests, a description of production and related control procedures and samples of labels and information to consumers. Italian legislation (in accordance with European laws) regulates in great detail the information to be indicated on the packaging. Marketing authorization includes a 10-year protection period during which no one else may use the results of the clinical trials included in the application to apply for a substantially similar drug. This period may be extended where there are new therapeutic indications for the same product, which require new complete clinical studies and justify the same protection as that granted to a new drug.

The AIFA may grant or deny the national authorization after a review of the contents of the application, both from a formal and substantial viewpoint. If an authorization is granted, it is valid for an initial period of five years and, upon application, may be renewed for subsequent five year terms. In particular, the AIFA examines the quality, effectiveness and safety of the product. The AIFA may also order further tests prior to granting or denying the authorization regarding the suitability of the production and control methods described in the application. The AIFA may reject the authorization if the ordinary use of the drug has adverse events, the quality and quantity of the ingredients of the drugs do not correspond to the data indicated in the application, there is a lack, either total or partial, of beneficial therapeutic effects or the information and the documents included in the application do not comply with the requirements provided by law. After the AIFA grants a national authorization, the AIFA may temporarily suspend or revoke the authorization if the information disclosed in the relevant application turns out to be incorrect, the drug no longer meets the necessary quality, effectiveness or safety requirements, or adequate production controls have not been carried out.

### Clinical Trials

Italy has recently implemented European legislation regarding good practices in drug clinical trials. As a result, clinical trials are now governed in great detail and failure to comply with these rules means that the results of the trials will not be taken into consideration in evaluating an application for a marketing authorization.

Prior to starting any clinical trial, the organizing and/or financing entity must obtain the approval of the competent health authorities (which vary depending on the type of drug concerned) and obtain the favorable opinion of the Ethical Committee, an independent body. Good practice rules include the following principles:

- the predictable risks and inconveniences shall not outweigh the beneficial effects for the person subject to the trials and for the other current and future patients;
- the person participating in the trials must have been duly informed of all the relevant circumstances and in particular of the right to interrupt the experimentation at any time without any prejudicial consequence, and must have given consent after having been properly informed;
- the right of the participants to their physical and mental integrity, as well as their right to privacy, shall be respected;
- the entity organizing the trial must have obtained adequate insurance coverage for any damage that may derive to the participants because of the trial;
- the name of a person to be contacted for any information must be communicated to the participant; and
- the trial must be conducted by suitably qualified medical personnel.

The trial must be constantly monitored, in particular with regard to serious adverse events which are not envisaged in the approved clinical protocol. Whenever the safety of the participants is in danger due to unexpected serious adverse events, the AIFA must be promptly informed by the entity organizing the trials. Italian legislation provides sanctions (criminal sanctions and administrative fines) in case of violation of specific good practice rules.

### Post-approval issues

There are many national legislative instruments (implementing European Union rules) governing controls on drugs in the post-authorization phase. For instance, the holder of the national marketing authorization must promptly record in detail and notify any adverse reaction to the drug of which it becomes aware, regardless of the country where the

reaction occurs, also preparing periodic update reports on these adverse events. For these and other purposes, the holder of the authorization must hire and maintain in its organization a person expert in the field and responsible for all drug controlling and reporting activities.

Moreover, any form of information and advertising aimed at promoting the sale of drugs is governed by specific national legislation (also implementing European Union rules), which provides for the requirements and limitations of advertising messages in general, as well as of other particular promotional activities, such as the organization of conferences regarding certain drugs and the distribution of free samples.

The export of drugs from Italy is not subject to authorization (except for plasma and blood-related products), but the import into Italy from non-European Union countries must be authorized by the Ministry of Health, on the basis of the adequacy of the quality controls to be carried out on the imported drugs.

#### European orphan drug status

European legislation lays down a particular procedure for the designation of medicinal products as orphan drugs. Such designation may include incentives for the research, development and marketing of these orphan drugs and, in case of a subsequent successful application for a marketing authorization regarding the same therapeutic indications, grants a substantial period of market exclusivity.

A medicinal product - at any stage of its development but in any case prior to the filing of any application for the marketing authorization - may be designated as an orphan drug if the person/entity that has applied for the designation can establish that it is intended for the diagnosis, prevention or treatment of a life-threatening or chronically debilitating condition affecting no more than five persons out of every ten thousand persons in the European Union, or that it is intended for the diagnosis, prevention or treatment of a life-threatening, seriously debilitating or serious and chronic condition in the European Union and that without incentives it is unlikely that the marketing of the medicinal product would generate sufficient income to cover the necessary investments. Moreover, the sponsor must prove that there is no satisfactory method of diagnosis, prevention or treatment of the condition in question that has been authorized in the European Union or, if such method exists, that the medicinal product will be of significant benefit to those affected by that condition.

In order to obtain the designation of a medicinal product as an orphan drug, the sponsor shall submit an application to the European Agency for the Evaluation of Medical Products, which must describe the indication of the active ingredients of the medicinal product, the proposed therapeutic indications and proof that the criteria established by the relevant European legislation are met.

The European Agency reviews the application and prepares a summary report to a special Committee for Orphan Medicinal Products, which issues an opinion within 90 days of the receipt of the application. The European Commission must adopt a decision within 30 days of the receipt of the committee's opinion. If the European Commission approves the application, the designated medicinal product is entered in the European Register of Orphan Medicinal Products and the product is eligible for incentives made available by the European Union and by member states to support research into, and development and availability of, orphan drugs.

After the registration, the sponsor must submit to the European Agency an annual report on the state of development of the designated orphan drug. A designated orphan drug may be removed from the Register of Orphan Medicinal Products in three cases:

- at the request of the sponsor;
- if it is established, before the market authorization is granted, that the requirements laid down in the European orphan drug legislation are no longer met; or
- at the end of the period of market exclusivity (as explained below).

Orphan drug market exclusivity means that the European Union shall not, for a period of 10 years from the grant of the marketing authorization for an orphan drug, accept any other application for a marketing authorization, grant a marketing authorization or accept an application to extend an existing marketing authorization, for the same therapeutic indications in respect of a similar medicinal product. This period, however, may be reduced to six years if

at the end of the fifth year it is established that the criteria laid down in the legislation are no longer met by the orphan drug, or where the available evidence shows that the orphan drug is sufficiently profitable, so that market exclusivity is no longer justified.

However, as an exception to orphan drug market exclusivity, a marketing authorization may be granted for the same therapeutic indications to a similar medicinal product if:

- the holder of the marketing authorization for the orphan drug has given his consent to the second applicant;
- the holder of the marketing authorization for the orphan drug is unable to supply sufficient quantities of the latter; or
- the second applicant can establish in its application that the second medicinal product, although similar to the authorized orphan drug, is safer, more effective or otherwise clinically superior.

### **Raw Materials**

We extract many of our products and product candidates from the DNA of pig intestines through well-established processes used by others to manufacture many other drugs. In particular, we extract defibrotide and calcium heparin from swine intestinal mucosa and sulglicotide from swine duodenum. In 2004, we entered into supply agreements with La.bu.nat. S.r.l. for La.bu.nat. to supply us with the swine intestinal mucosa and swine duodenum we need to produce defibrotide, calcium heparin and sulglicotide. We believe La.bu.nat can meet our current and near-term supply needs.



The initial contract term of the swine intestinal mucosa supply agreement expires on December 31, 2007, with automatically renewable three year periods, unless either party notifies the other party in writing six months prior to the annual date of termination. We must give written purchase orders to La.bu.nat at least two months in advance of the date of delivery. For the year ending as of December 31, 2007, the purchase price has been fixed at €0.1757 per kg. After December 31, 2007, both parties may request renegotiation of the price with reference to market trends and manufacturing costs. In the event that the parties cannot agree on a renegotiated price, an arbitrator will determine the new price.

The initial contract term of the swine duodenum supply agreement expires on December 31, 2007, with automatically renewable three year periods, unless either party notifies the other party in writing six months prior to the annual date of termination. We must give written purchase orders to La.bu.nat at least four months in advance of the date of delivery. For the year ending as of December 31, 2007, the purchase price has been fixed at €1.0157 per kg, subject to a 5% discount for quantities purchased over 90,000 kg.

While we have no current arrangements with any other supplier of our critical raw material, we believe there are suitable alternative sources of pig intestine. The FDA and other regulatory bodies may evaluate La.bu.nat.'s or any other supplier's processing centers as part of approving our product candidates and our ongoing production of our products.

Our other product, urokinase, is derived from human urine, which is subject to similar regulatory review. While we currently purchase the urine from only one supplier of urine and do not have a fixed supply agreement with that supplier, we believe there are suitable alternative sources of the material.

Historically, there has been no significant price volatility for any of our raw materials. It is possible that widespread illness or destruction of pigs could result in volatility of the price of pig intestines.

### **Competition**

Our industry is highly competitive and characterized by rapid technological change. Significant competitive factors in our industry include:

- controlling the manufacturing costs;
- the effectiveness and safety of products;
- the timing and scope of regulatory approvals;
- the willingness of private insurance companies and government sponsored health care programs to reimburse patients or otherwise pay for the drugs and the related treatments;
- the availability of alternative treatments for the disorders as well as the availability of alternatives to the treatments which cause or contribute to these disorders (such as chemotherapy, radiation therapy, stem cell transplants, etc.);
- the ability to perform clinical trials, independently or with others;
- intellectual property and patent rights and their protection; and
- sales and marketing capabilities.

We face competition in both the development and marketing of our product candidates. During development alternative treatments for similar or completely different disorders may limit our ability to get participants or co-sponsors for clinical trials with our product candidates. Any product candidates that we successfully develop that are approved for sale by the FDA or similar regulatory authorities in other countries may compete with products currently being used or that may become available in the future. Many organizations, including large pharmaceutical and biopharmaceutical companies, as well as academic and research organizations and government agencies, may be interested in pursuing the research and development of drug therapies that target the blood vessel wall. Many of these organizations have substantially greater capital resources than we have, and greater capabilities and resources for basic research, conducting preclinical studies and clinical trials, regulatory affairs, manufacturing, marketing and sales. As a result, our competitors may develop or license products or other novel technologies that are more effective, safer or less costly than our existing products or products that are being developed by us, or may obtain regulatory approval for products before we do. Clinical development by others may render our products or product candidates noncompetitive.

While we are unaware of any other products or product candidates that treat or prevent VOD or the apoptosis that our product candidate oligotide is designed to treat, we believe that other companies have products or are currently developing products to treat some of the same disorders and diseases that our other product candidates are designed to treat.

Our statements above are based on our general knowledge of and familiarity with our competitors.

**Legal Proceedings**