

**NATURE OF BUSINESS**

The Group, established in January 2001, is engaged in the medical business relating to diagnosis, and particularly relating to diagnosis of cancerous, prenatal and other major diseases. This involves conducting research and development and commercialisation of testing services developed from third party technologies relating to the diagnosis of cancerous, prenatal and other major diseases.

Presently, the Group has successfully launched testing services in the cancer field, where the Directors believe the Group is one of the companies that uses the PDx Technology for the detection of EB virus associated cancerous diseases including nasopharyngeal cancer, a type of cancer of the nasopharynx at the back of the nose, and EB virus associated stomach cancers. The PDx Technology is a platform technology that detects genetic markers including DNA, RNA, EB virus DNA or viral genomes found circulating in blood plasma or serum and in other bodily fluids for screening, diagnosis and monitoring of diseases. The PDx Technology is non-specific as it refers to the detection of any genetic materials found circulating in blood plasma or serum. It is a general and generic form of a test. Accordingly, the PDx Technology as being referred to in a general sense is not itself a patent. Rather, patents are filed in respect of the PDx Technology that pertains to specific targets and diseases. A number of patents relating to the PDx Technology were filed pursuant to the Patent Cooperation Treaty and in the USA and Taiwan by the Chinese University, Dr. Yeung and ISIS that relates to the diagnosis of certain specific cancerous, foetal and other diseases. Dr. Yeung, a co-founder of the Group, contributed to the filing of the EB virus diagnosis patent by Professor Lo back in December 2000 which application process is completed and awaiting the grant of the patent. Such patent was subsequently licenced to the Group. Dr. Yeung had also performed research leading to two subsequent filing of patents in the U.S.A. based on the PDx Technology. These patents are now assigned to the Group. In addition, by entering into the Consultancy Agreement with the Chinese University, the Group has obtained the techniques relating to the PDx Technology from the research group of the Chinese University headed by Professor Lo. Together with a number of licensing agreements entered into with the Chinese University and ISIS in respect of patents filed and patents contributed by Dr. Yeung, they form the basis of the Group's testing services.

The Directors consider that the testing services currently offered by the Group for detecting cancerous diseases at an early stage to be an important contribution to the treatment of cancer in medical science since early detection allows for more aggressive treatment and enhances the likelihood of successful treatment of these diseases. Currently, the Group conducts research activities into developing a number of future testing services which are based on the PDx Technology. Examples of these include detection tests for screening early liver cancer, which are at the final development stage of research to affirm its usefulness for commercial exploitation; diagnosis of Down's syndrome and other foetal diseases that will be used as alternative non-invasive tests to those currently available in the market; and tests for assessing medical conditions of patients suffering from organ transplant failure, stroke, trauma and pleural effusion. (Please refer to the sub-section headed "Future testing services" in the section headed "Statement of business objectives and strategies" for further details.)

The cancer and foetal maternal testing services are all based on the same and common PDX Technology platform and they are all similar in technology, except for different medical applications. They all involve DNA or RNA extractions and use real time PCR machines to amplify genetic material products. These cancer and foetal maternal tests all fall within one focused line of business of the Group.

Based on the Directors' knowledge and experience in the bio-medical field, the Group is one of the companies in the world to bring to the market tests developed from the PDX Technology for early detection of cancerous diseases. The Group's tests identify several genetic markers including DNA, RNA, and EB virus DNA which, if present in the blood plasma or serum of a patient, increase the probability that such patient will be affected by prenatal or cancerous diseases as well as organ transplant failures, stroke, trauma and/or pleural effusion. Doctors, patients and laboratories may use the Group's tests to detect the above diseases at an early stage to facilitate better selection of treatments or therapy planning. As the tests developed by the Group are highly sensitive and specific, they may also assist patients and doctors in making more informed decisions. The Group's testing services relating to cancerous diseases can be used as part of a routine health check-up as well as a preliminary diagnosis of suspected cancerous diseases. If the test results are positive, the patients will then be referred for further evaluation using a PET scan or a CT scan to confirm the diagnosis and location of the cancer. The Group's cancer testing services involve the use of blood tests and are non-invasive while a PET scan or a CT scan uses radiation. These testing services are also relatively less expensive than a PET scan or CT scan.

Based on the same platform of the PDX Technology, the Group has also conducted SARS testing, where the Group offers RNA quantification testing service of the SARS virus to all the hospitals in Hong Kong. On 6 June, 2003, the Group entered into a research collaboration agreement with the Chinese University to conduct research regarding the treatment and diagnosis of SARS. However, the SARS testing was launched in a limited scale in late July 2003 as a free sample in kit form for two hospitals with in-house real time PCR machine operation in Hong Kong. The Group's marketing effort extended to the private hospitals in September 2003 but sales were halted as soon as an announcement was released in September 2003 that the Department of Health of the Hong Kong Government will accept sample testing for SARS from private hospitals for free. The Group, therefore, has not recorded any revenue from this line of business. On 15 October, 2003, the Group was granted by the Chinese University a non-exclusive licence regarding the use of technology for early diagnosis of SARS.

By entering into the Consultancy Agreement, the Chinese University provides the Group with access to the Chinese University's biotechnology research. In addition, Dr. Yeung heads the research and development team of the Group with new insights based on the PDX Technology that can be conducted in-house. At the same time, the Group conducts a series of community and clinical research programmes jointly with the Town Health group, a local health care provider. These arrangements help to provide for the development of testing services without the need for the Group to support large in-house research programmes. While scientific and basic research are performed both by academic institutions and the Group, the emphasis of the Group's work is to transform scientific basic research results into commercially viable testing services that can be launched to the market.

In addition, reference is made to the paragraph headed "Regulatory requirements" in the section headed "Industry overview" of this prospectus relating to the compliance of the Group's business with relevant laws and regulations.

**BUSINESS DEVELOPMENT AND SCIENTIFIC DEVELOPMENT OF THE PDx TECHNOLOGY**

For many years the detection of prenatal diseases has been carried out through techniques that are often invasive and in the case of detection of Down's syndrome, commonly used techniques available on the market present a risk of miscarriage. According to an article issued by Stanford University School of Medicine, the level of risk of miscarriage is approximately 0.5% for all women undergoing amniocentesis.

During the period from 1988 to 1997 which was the period of Professor Lo's employment with Oxford University, the United Kingdom, Professor Lo and his collaborators conducted research which ultimately led to their subsequent discovery of a non-invasive technique to detect prenatal diseases using maternal blood plasma or serum and it was ISIS, a company wholly owned by Oxford University, which filed and owned the related patent. This formed one of the earliest patents of the PDx Technology which was later licensed to the Group by ISIS for further research and commercial exploitations. Later in 1997, Professor Lo left Oxford University and worked for the Chinese University where he and his collaborators developed other components of the PDx Technology that can be commercially applied as a test for detecting cancer and monitoring medical conditional of patients suffering from other major diseases like stroke and trauma. The Chinese University filed and owns the patents in respect of these subsequent discoveries, which were then licensed to the Group. Since then, Professor Lo's research activities relating to the PDx Technology covered both the foetal maternal field, focusing on devising non-invasive methods for detecting Down's syndrome and other foetal abnormalities and the oncology field specialising in the early detection of EB virus associated cancers and liver cancer. In line with the Group's objective of becoming one of the medical diagnostic services providers in respect of major diseases using non-invasive techniques, the Group successfully commercialised a number of cancer testing services developed from the PDx Technology transferred or licensed to it by ISIS and the Chinese University. Concurrently, the PDx Technology has been used to develop other diagnostic tests for monitoring medical conditions of patients such as tests for organ transplant failure, stroke, trauma and pleural effusion.

Plasmagene is one of the companies in the world to offer the use of blood tests in the diagnosis of cancerous diseases using the PDx Technology.

The Group advanced its research capabilities in cancer diagnosis through its cooperation with the Chinese University in conducting research into developing detection tests for cancer using the PDx Technology transferred or licensed to the Group by ISIS and the Chinese University. (Please refer to the subsection headed "Active business pursuits" for further details of the Group's cooperation with the Chinese University and its business development from 1 January, 2001 to the Latest Practicable Date.)

The EB virus associated cancer tests based on the PDx Technology are applicable to nasopharyngeal carcinoma and possibly to a wide variety of other common cancers. The nasopharyngeal carcinoma test is useful as a diagnostic, prognostic and monitoring tool, and is recommended by doctors to both patients at risk as well as actual patients under treatment. The foetal maternal products may be used for the non-invasive diagnosis of a variety of foetal and maternal diseases that are common to most pregnancies. According to the statistics from the Hong Kong Cancer Registry of the Hospital Authority of Hong Kong, the number of new cancer cases in Hong Kong were

on an upward trend from 1995 to 2000 and reached a total of 21,349 cases in 2000. According to data published by the United Nations Development Programme, the total fertility rates (per woman) for 2000 to 2005 is projected to be 2.7 children for the world, 1 child for Hong Kong and 1.8 children for the PRC. Accordingly, the Directors consider that the potential market for the Group's products is enormous.

## **ACTIVE BUSINESS PURSUITS**

The following paragraphs describe the active business pursuits undertaken by the Group from 1 January, 2001 to the Latest Practicable Date.

### **Period from 1 January, 2001 to 30 June, 2001**

#### *Strategic and research development*

On 11 January, 2001, 3 Ben was incorporated in the Republic of Mauritius to engage in research and development studies on cancer diagnosis and treatment using technology contributed by Dr. Yeung. On 16 January, 2001, 3 Ben entered into an agreement with ISIS whereby ISIS agreed to supply to 3 Ben the PDx Technology for the purposes of conducting a technical and commercial evaluation of the technology and granted an option to 3 Ben or its nominee the right to take a licence in respect of the PDx Technology in certain countries.

From January to June 2001 the Group, led by Dr. Yeung, studied into the technical aspects and potential commercial use of the PDx Technology. The evaluation process involved research into the regulatory requirements, potential market size and analysing publications and other related academic materials to determine if the technology is suitable for commercialisation and application to human diseases. In particular, related scientific data extracted from publications were compiled and reviewed by Dr. Yeung, and which later formed the subject of discussions between Dr. Yeung and Professor Lo. Preliminary trial demonstrations of applying the PDx Technology for practical use were conducted at the laboratory of the Chinese University under the supervision of Professor Lo and was demonstrated to Dr. Yeung. Questions from Dr. Yeung relating to the assessment of the technology were answered satisfactorily by Professor Lo. In assessing the market potential of testing services to be developed from the PDx Technology, Dr. Yeung and another Director, Mr. Cheng Yan Tak, Ronald Angus compiled and analysed relevant data regarding countries which have high occurrence of cancer and foetal diseases, the size of population who may have these diseases and the estimated penetration rate of testing services. Dr. Yeung also consulted Ms. Vicky Chu ("Ms. Chu") on the regulatory requirements to establish a laboratory for conducting diagnostic testing services in Hong Kong. Ms. Chu is a licensed medical laboratory technician in Hong Kong and a director of Plasmagene. The results of the evaluation were satisfactory and showed that the PDx Technology could be applied to detect a variety of foetal diseases such as Down's syndrome and foetal distress and possibly, cancerous diseases.

Dr. Yeung used some of the data generated during his pursuit of the EB virus detection system to support the submission of a broad claim by Professor Lo of the patent for the EB virus test for stomach cancer and other non-head and non-neck cancers besides nasopharyngeal cancer in major countries and regions including the United States, Europe, Japan and China. The Group does not,

however, own the patent rights. The Group has paid an application fee to complete the application process in such a patent in the United States recently. All necessary documents have been filed in respect of such application. The grant of the patent is pending. Pursuant to an exclusive licence agreement (as described in the licence numbered 8 in the table under sub-section headed “intellectual property” in this section), the Group agreed to reimburse the Chinese University for expenses incurred for such patent application.

After completion of the evaluation process, the Group and the Chinese University entered into further negotiations concerning the proposed licensing and transfer of the PDx Technology, the related licensing agreement and future cooperation. A firm of solicitors in England and Hong Kong was also retained by the Group from February 2001 to June 2001 to advise on the proposed licensing arrangements, and legal fees of some HK\$544,419 were incurred during this period. On 22 June, 2001, Plasmagene (which was incorporated in 23 March, 2001) was granted an exclusive licence by ISIS to use the PDx Technology in the area of invasive pre-natal diagnosis for its research work. This licence covers Australia, Japan, Hong Kong and China and no limitation on the commercialisation of such the PDx Technology.

In March, 2001, the Chinese University invited Plasmagene to submit a letter of intention to bid for the license of the right to use its research findings on the analysis of certain genetic members in blood plasma or serum for prenatal diagnosis covering X-linked diseases, foetal abnormalities and pregnancy associated conditions. The Group saw this as an opportunity to further strengthen its position in the market and pursue to respond to such invitation. Discussions with the Chinese University on the terms of the licence followed and legal documents were prepared. Finally, on 4 June, 2001, Plasmagene was granted an exclusive licence by the Chinese University. (Please refer to the description of the licence numbered 2 in the table under the sub-section headed “Intellectual property” in this section for further details of this licence.)

Throughout this period, potential members of staff in administration and marketing departments of the Group were recruited and they started to prepare drafts of the complete business plans, financial structure and forecast, selection of the Group’s site and the ordering of equipment for a complete genetic laboratory. This work was in addition to the secretarial and accounting work required for the documentation and signing of licenses that formed the backbone of the PDx Technology platform during this time period. Most of the work was undertaken by staff members who were engaged on a contractual basis and not on the Group’s payroll, although most of them were hired back formally after the Group’s premises was properly set up in August of 2001.

On 29 May, 2001, Plasmagene was granted a non-exclusive licence by F. Hoffmann - La Roche Limited, a drug manufacturer based in Switzerland to practise the polymerase chain reaction technique to facilitate the detection of a genetic marker known as EB virus DNA in blood plasma or serum. Normally, a blood sample consists of a limited amount of DNA that can be used for diagnostic purposes. With the use of the polymerase chain reaction technique, the amount of DNA in a blood sample can be multiplied millions of times, and thereby facilitating the diagnostic study and detection of certain cancerous diseases associated with EB virus.

Pursuant to the Consultancy Agreement, Professor Lo acts as the Chinese University's designated consultant to Plasmagene and advised on the establishment of a laboratory to conduct prenatal and cancer diagnostic services developed from the PDx Technology. The Chinese University would also assist the training of appropriate laboratory personnel and advise on the maintenance of systems at the laboratory. From June 2001 to July 2001, the Group selected and refurbished the site location, purchased laboratory equipments and hired research staff for the Group's laboratory to conduct diagnostic testing services. An independent contractor was engaged to carry out the refurbishment works. No written agreement was entered into by the Group with respect to the refurbishment of the Group's laboratory.

#### *Staff*

As at 30 June, 2001, the Group had two full-time employees, namely, Dr. Yeung and Ms. Margaret Tsui. Dr. Yeung and Ms. Margaret Tsui were responsible for the day-to-day operations of the Group, and Dr. Yeung was also responsible for research and development.

#### *Funding arrangements*

The operation of the Group during this period was funded by internal resources and loans from Ms. Margaret Tsui.

#### **Period from 1 July, 2001 to 30 June, 2002**

#### *Strategic development*

By August 2001, the set up of the Group's laboratory at Room 301, Institute of Biotechnology Administration and Research Building, 2 Biotechnology Avenue, 12 Miles, Tai Po Road, Shatin, New Territories, Hong Kong was completed. Research and implementation of diagnostic services developed from the PDx Technology were carried out at the laboratory.

Under a letter of authorisation dated 1 January, 2002, Plasmagene authorised Spring Biotech (China) Limited as its sole agent to use the technology licensed to it by Plasmagene in the PRC. The authorisation was subsequently replaced by an agreement dated 25 February, 2002 entered into between Plasmagene as the sub-licensor and Spring Biotech (China) Limited, an indirect wholly owned subsidiary of Town Health, as the sub-licensee whereby Plasmagene granted to Spring Biotech (China) Limited an exclusive sub-licence to use the PDx Technology for production, sale and other commercial exploitation of any product and services developed from such technology for detecting cancerous diseases in the PRC. The agreement was for a term of three years expiring on 24 February, 2005. (Please refer to the sub-section headed "Connected transactions" in this section for further details.)

Celltech was incorporated in Hong Kong on 25 January, 2002. It is currently dormant and is expected to undertake research and development work on stem cell technology for treating cancer patients who receive chemotherapy treatment, and replacing damaged organs and tissues in various major diseases.

On 15 March, 2002, the Group was granted an exclusive worldwide licence by the Chinese University pertaining to the prolonged efforts of Professor Lo and his collaborators in the finding of using EB virus DNA as a test for stomach cancer.

On 23 April, 2002, the Group formed a strategic alliance with the Town Health group to jointly launch a community research programme through entering into an agreement between Spring Biotech and Plasmagene whereby Plasmagene would provide consultancy services to Spring Biotech in respect of tests for EB virus associated stomach cancers, early liver cancer and nasopharyngeal carcinoma. The programme consists of seminars and new cancer screening tests based on the PDx Technology for the detection of EB virus associated stomach cancer and early liver cancer. These new genetically based tests, which were marketed as *EBeasy* and *EBgene* were offered free of charge to the public during the launch of the programme. The test results would on one hand be followed up by the patients' doctors at the medical centres of Town Health and on the other hand, serve as primary data for use by the Group in its research into early detection methodologies for stomach cancer. Later in May and June 2002, the Group and the Town Health group jointly launched two additional community research programmes offering blood tests for detection of liver cancer for hepatitis carriers. The programmes were well received with around 600 patients who enrolled in the programme.

On 21 May, 2002, the Group was granted a licence by the Chinese University to use a special methodology known as DNA methylation analysis to facilitate the finding of the presence of DNA in blood plasma or serum for detecting foetal maternal diseases. (Please refer to the description of the licence numbered 4 in the table under the subsection headed "Intellectual property" in this section for further details of this licence.)

### *Research development and technology advancement*

By March 2002, Professor Lo and his collaborators at the Chinese University discovered, that the detection of a genetic marker known as beta-globin DNA in blood plasma can be used to assess the medical condition and chances of recovery for stroke patients. The Group has verified successfully this beta-globin test in its laboratory during this period.

The usefulness of the Group's test for the diagnosis of X-linked diseases was confirmed by a medical publication issued in May 2002 in the *New England Journal of Medicine* authored by research scientists in France.

### *Product commercialisation*

The Group concentrated on the recruitment of scientific staff and the organisation and fine-tuning of the laboratory equipment. Two members of the scientific team of the Group were sent to be trained in Professor Lo's department in the latter part of July 2001. The Group's staff received (i) training for running of PCR, real time PCR reactions and the foetal RNA detection system; (ii) education in the understanding of the EB virus DNA detection system; (iii) training in analytical performance and quality control; (iv) clinical sample testing and the theory behind how a test can be applied clinically; and (v) different methodologies that are advanced techniques in this field.

Equipment arrival, installation, custom fitting and actual construction of the genetic laboratory continued throughout the beginning of this period until the opening of the laboratory on 19 August, 2001.

From August to November 2001, the Group carried out trial laboratory tests on *EBgene* developed from the PDx Technology followed by field tests and community research programme. This new testing service gives a precise and real time monitoring of nasopharyngeal cancer patients, and is therefore expected to be used extensively in the diagnosis, prognostication and follow up of such patients. This testing service had undergone clinical testing at the teaching hospital of the Chinese University for over three years prior to its launch. The test results showed the usefulness of *EBgene* for the diagnosis of nasopharyngeal cancer, with no side effects as the testing service only involves a blood test. The Group considers this was an important milestone which laid the foundation for the Group in commercialising EB virus associated cancer testing services.

The Group has put considerable effort before the launching of the *EBgene* into the market. There were major steps to be performed and completed to convert the test from a research tool into a commercial product. Besides the intensive training done by Professor Lo's department, the first step was to change the formulation of the test so that it could be used by the new ABI 7900 series of sequence detection system instead of the older ABI 7700 system. The ABI 7700 (now discontinued) and the newer ABI 7900 are sequence detection systems that can detect genetic sequences by polymerase chain reaction (both models are PCR machines with proprietary hardware and software modifications). They are the machines in which the PDx Technology is based and which the Group would use to perform its tests. The commercial use of these machines would be governed by the licence numbered 1 in the table under the sub-section headed "Intellectual property" in this section. The change in formulation for the new machine, including (a) reduction or adjustment of the different reagents used; (b) optimisation of the standards; (c) changing of source suppliers and (d) adaptation of the new formulation to the new machine, is an important commercialisation step, as it resulted in: (i) quicker turn around time and saving of labour costs because the time for a run of the machine in the new system is much shorter than the old one by more than an hour; (ii) more samples on each run (an increase from 96 to 384 wells plate on each block) can be achieved, making it suitable for bulk analysis in the future and (iii) less down time because of the more stable software that comes with the new machine. New formulation changes represented changes from ABI 7700 system to ABI 7900 system, these include the analytical performance in different conditions to test the machine and reagents. The old ABI 7700 system used a smaller number of wells in each plate and an older laser excitation technique. After numerous trials and efforts, the Group has accomplished the development of an equivalent formulation to fit a faster and commercially friendlier machine. In addition, the Group's internal control showed that the new formulation has an improved sensitivity.

In addition to the above, it was the Group's realisation that the cost of performing the test was too expensive if it were performed in the manner indicated in the original publications. Cost reduction was an important agenda. By working closely and with parallel testing samples performed at Professor Lo's department but with the reduction of certain expensive reagents, some minor changes of formulation and the use of a higher plate block in the ABI 7900 system, the Group worked to reduce the actual cost of the *EBgene* and *EBeasy* tests to a level that would be affordable to most nasopharyngeal cancer patients but that the quality of the test was not compromised at the end.



As a summary, the Group has finally accomplished the goal of cost reduction by (i) quicker turn around time and less labour cost incurred because the ABI 7900 system is a much faster machine; (ii) more samples per run (384 as opposed to 96 in the previous machine); (iii) cost cutting on reagents because of the reduction of materials used in new formula, by using a new supplier and by bulk purchase; and (iv) reducing machine downtime with a more stable software and hardware in the ABI 7900 system. All of the above work relating to the commercialisation and enhancement of the EB virus test were performed by the Group's scientific team comprising Dr. Yeung and three full-time staff.

In commercialising *EBgene*, the Group undertook studies into related technologies involving research and analysing the academic materials to determine that the technologies are suitable for commercialisation. In particular, the Group reviewed related literature to compare the sensitivity and specificity of *EBgene* with other tests available in the market. Such review indicated that *EBgene* achieved a sensitivity of over 96% and specificity of around 93% as compared to about 80% for the existing antibody test for nasopharyngeal cancer. An informal survey was also undertaken to assess these findings by applying *EBgene* on a trial basis to patients with nasopharyngeal cancer known to Dr. Yeung. The survey conducted by Dr. Yeung was done by requesting the permission of certain of his former nasopharyngeal carcinoma patients to have free blood tests performed by Professor Lo's team in the Department of Chemical Pathology of the Chinese University. The test results were compared to the clinical conditions of the patients at the time. The results of the survey were satisfactory and consistent with the Group's earlier research work described above.

The cancer testing service was named as *EBgene* since it detects a genetic marker known as EB virus DNA in the blood plasma of nasopharyngeal cancer patients. *EBgene* was launched to the market in November 2001.

#### *Product development*

Even at this early stage of the *EBgene* product development, the Group tried to increase the sensitivity of the test so that nasopharyngeal cancer patients at an early stage or those patients that are prone to relapse may benefit. This notion eventually led to the development of *EBsens* and *EBonco* in the latter part of 2003. These tests are based on the same the PDx Technology and that they all fall within one focused line of business of the Group.

Dr. Yeung had also consulted Professor Lo in designing how the results of *EBgene* should be presented to users that are mainly doctors and laboratories. A special reporting format for recording the test results was designed for this purpose. This step is important as the cancer test should give the necessary and relevant information for doctors to explain the test results to their patients. Operating procedures for laboratory technicians were also set up during this period. Regulatory requirements were reviewed to ensure that the testing service can be used commercially and are marketable.

In November 2001, the Group launched its first testing service known as *EBgene* in Hong Kong. Since its launch, this line of product has generated steadily increasing revenue for the Group.

Later in January 2002, the Group launched its second testing service known as *EBeasy*, which like *EBgene*, is based on detection of EB virus DNA in blood plasma. This testing service is a symptomatic screening test which gives either a positive or negative result in the detection of EB virus associated cancer. It has the same sensitivity and specificity in detecting EB virus associated cancer as that of *EBgene*. The *EBeasy* test is done in a batch, meaning that there may be a few days' delay in reporting the test results. *EBeasy* is a lower priced test than *EBgene* and is prescribed as a routine test to facilitate diagnosis by physicians in their daily practice. Studies into the underlying technologies of *EBgene*, laboratory test trials, and regulatory requirements are also carried out prior to its launch.

The launch of *EBgene* and *EBeasy* demonstrated the value added to the original research grade test performed at research laboratories. The original EB virus test performed at Professor Lo's laboratory was transferred to the Group. The original version was then changed by the Group substantially in the formulations and methodology to yield two different versions of the test, *EBgene* and *EBeasy*. These two versions were catered to different needs. With the Group's effort, the costs for performing the two tests were also reduced to a substantially lower level than the original EB virus test. Later, the two tests were also developed into test kits that can be sold to other laboratories.

The Group has performed product enhancement and development work after the first product launch. The concept of a more sensitive and more cancer specific for chronic active EB virus carriers test with the EB virus DNA real time PCR detection was conceived. The Group started to see that there is a continual need to develop test that can detect the cancer causing tendency of normal individuals carrying the virus. Since over 95% of the population carries such a virus in their memory B lymphocytes, the Group believed that tests of this kind could be a great scientific and commercial success. This led to latter on research on the development of future products such as *EBsens* and *EBonco*.

The first reporting form of *EBgene* was designed by Dr. Yeung with the advice from Professor Lo so that the scientific interpretation of the results could be conveyed to physicians that are not familiar with the most up to date literature on this topic. This reporting form had gone through multiple changes to accommodate new and important information and publications related to this area. The significance of a good reporting form with its recommendations helps the doctor ordering the test in making the diagnosis and the decision for further follow up procedures of the patient. Not only may the Group's business benefit by the need of further follow up with re-testing in some cases, the satisfaction resulting from a good medical practice may encourage doctors to use the Group's products subsequently.

The pre-launching laboratory and clinical preparation of the second product, namely *EBeasy*, a modified and simpler version of *EBgene* which is marketed as a non-expensive screening tool. The official launching of *EBgene* was in late January to February of 2002. Collection of feedback from doctors and clinical test results of the *EBgene* and *EBeasy* tests were used to substantiate further product development and enhancement. Decision was made to add a frequently used old EB virus antibody test with *EBeasy* and to promote this combination as *EBcombo*. The project was co-developed with another laboratory that would provide the EB virus antibody test for the Group.

*Sales and marketing*

Prior to the introduction of *EBgene* to the market, the Group promoted this new testing service through various marketing channels, including press advertisements, organizing seminars for the public and telephone contacts with local laboratories and doctors. Letters, journal abstracts, updated materials and postcards on the Group's testing services were also mailed to local laboratories and physicians at regular intervals. These promotional materials contain information on what the testing service entails, and procedures for delivering blood test results to the Group's laboratory.

Educational seminars to patients and the general public were also conducted during the period of July 2001 to December 2001. Volunteers were recruited for providing clinical samples that the Group performed for free so that some of the quality control, analytical and adaptation steps as described could be realised. Doctors in Hong Kong were also informed about the *EBgene* and *EBeasy* tests through postcards, flyers and other marketing or educational materials.

In November 2001, the Group recruited two full-time marketing personnel to conduct market surveys by contacting the hospitals and doctors from time to time to understand the needs of patients with cancerous or prenatal diseases. The Group's sales campaigns were successful as evidenced by the steady increase of the Group's sales of testing services during the Track Record Period.

The Group's sales and marketing strategies during this period had focused on offering test as a laboratory service only in Hong Kong, such as local medical doctor communities, hospital laboratories, private laboratories, individual citizens that are prone to EB virus associated cancer and cancer patients such as nasopharyngeal carcinoma, stomach cancer and lymphomas.

With the aims of achieving the said sales and marketing strategies, the Group has (i) made doctors' announcement following first launch of *EBgene* and placed advertising in newspapers, (ii) conducted direct marketing to private laboratories so that they can in turn market the service to doctors that have been using them in the past; (iii) conducted direct marketing to individual doctors and specialists, such as ear, nose and throat (ENT) doctors; (iv) sent mailings to the medical communities with letters, flyers and postcards describing the *EBgene* and *EBeasy* tests in March and June 2002 and to patients; and (v) held several public education seminars during December 2001 to May 2002.

*Customers*

The Group's major customers are laboratories and hospitals in Hong Kong. Other customers also include doctors, clinics of local universities and clinical research programmes conducted between the Group and other healthcare organisations. During the year ended 30 June, 2002, the Group's turnover amounted to HK\$525,545 which comprised of *EBgene* of HK\$248,575, *EBeasy* of HK\$223,770 and other future tests under research and development of HK\$53,200. The Group's sales to its largest customer and five largest customers were HK\$162,660 and HK\$358,660, respectively, representing approximately 31.0% and 68.2% of the Group's sales for the year ended 30 June, 2002. Sales to Spring Biotech amounted to HK\$162,660 during the year ended 30 June, 2002, representing approximately 31.0% of the Group's sales for the corresponding period.

## BUSINESS

Under the community research programme, sales to Spring Biotech are mainly *EBeasy* and some of the future tests (as described under the section headed “Future testing services” in the section headed “Statement of business objectives and strategies”) which are still under research and development.

Save for the sales to Spring Biotech, none of the Directors, their associates or any of the shareholders of the Company who owns more than 5% of the issued share capital of the Company had any interest in any of the five largest customers of the Group.

### *Set backs*

Two of the scientific staff of the Group were replaced as they did not meet the level of expectation of the Group in the commercialisation and product development work.

It was more difficult than expected to set up sales and marketing channel to doctors working in the public sector since their patients were used to free blood tests.

### *Staff*

All of the employees of the Group were stationed in Hong Kong. As of 30 June, 2002, the Group had 7 full-time employees who were engaged in the following functions:

Management	1
Sales and marketing	2
Research and development (including implementation of laboratory tests for the provision of the Group’s testing services)	3
Administration and finance	<u>1</u>
Total	<u><u>7</u></u>

### *Funding arrangements*

The Group’s operation during this period was funded by internal resources and loans from certain Shareholders and New Oxford Management Limited, a connected person of the Company. These loans were unsecured, interest free and with no fixed repayment terms. (Please refer to notes 18 and 20 to the accountants’ report in Appendix I to this prospectus for further details of the Shareholders’ loans and loans from New Oxford Management Limited.)

In April 2002, the Group sponsored the Chinese University in relation to a research project focusing on non-invasive detection of Down’s syndrome, which is one of the future testing services of the Group. The results of the research project helped expand the usefulness of the PDx Technology already licensed to the Group. Particularly, the Group’s research team, would use such results together with its own research efforts, for developing and commercialising testing service for detecting Down’s syndrome. (*Note:* The results of the research project and methods for detecting Down’s syndrome were licensed by the Chinese University to Plasmagene in March 2003.) Professor Lo acted as the

coordinator of the research project. The Group contributed to this project a total sum of HK\$375,000 in 2002 and 2003 and will contribute a further sum of HK\$125,000 in 2004, representing approximately 10% of the total monetary contribution received by the Chinese University for the project. Please refer to the subsection titled “Future testing services” in the section headed “Statement of business objectives and strategies” for further details of the Group’s test for Down’s syndrome.

**Period from 1 July, 2002 to 30 June, 2003**

*Strategic development*

The technology of using beta-globin DNA in blood plasma for the assessment of stroke was later licensed by the Chinese University to the Group and formed the basis for the Group’s stroke test.

During the period from July 2002 to June 2003, the Group started negotiations with major laboratories in Japan and in Australia with a view to introducing the Group’s existing cancerous testing services and foetal sex and X-linked diseases testing services in these countries. As at the Latest Practicable Date, these negotiations were at a preliminary stage. Due to the lack of funding and the outbreak of SARS, negotiations in those countries were halted temporarily. However, all the leads have been identified and expansion efforts can resume any time after new funding injection. (Details of the regulatory requirements in respect of these jurisdictions are set out in the sub-section headed “Regulations requirements” in the section headed “Industry overview” of this prospectus.)

On 31 July, 2002, the Group was granted an exclusive licence by the Chinese University (please refer to the description of the licence numbered 5 in the table under the subsection headed “Intellectual property” in this section for further details of this licence) to use a special methodology to quantify a genetic marker known as beta-globin DNA in a blood sample for developing diagnostic tests for stroke. (Please refer to the subsection headed “Future testing services” in the section headed “Statement of business objectives and strategies” for further details of this future testing service.) Given that stroke is a common and devastating disease especially amongst Chinese populations, this licensed methodology is expected to attract high demand in Hong Kong and overseas. On the same date, the Group was granted an exclusive worldwide licence by the Chinese University (Please refer to the description of the licence numbered 6 in the table under the subsection headed “Intellectual property” in this section for further details of this licence) pertaining to the use of a specific methodology to isolate certain genetic markers such as RNA and DNA in the blood plasma or serum to facilitate detection of prenatal and cancerous diseases. The Directors expect that the new methodology will assist the Group in broadening the types of testing services to be offered for instance, test for liver and prostate cancer and test for Down’s syndrome.

On 15 August, 2002, the Group was granted a licence by the Chinese University (please refer to the description of the licence numbered 7 in the table under the subsection headed “Intellectual property” in this section for further details of this licence) to use the latter’s research findings for analysing a genetic marker known as beta-globin DNA to diagnose the cause of a medical condition known as pleural effusion, which refers to a large amount of fluid present on the lung surface that may cause shortage of breath and lung failure. It is known that this condition may be caused by cancer, infection and/or heart failure.

In September 2002 and June 2003, the Group underwent a corporate reorganisation involving the setting up of a new holding company of the Group for the purposes of its listing on GEM and to facilitate future fund raising activities. As a result of the Reorganisation, the Group's existing organisational structure was established, the Company became the holding company of the Group, and Ms. Margaret Tsui, Dr. Yeung, and other Initial Management Shareholders together with Mr. Wong Kim Wing, Professor Lo and The Chinese University of Hong Kong Foundation Limited became Shareholders.

On 25 November, 2002, Plasmagene was granted a licence by the Chinese University (please refer to the description of the licence numbered 8 in the table under the subsection headed "Intellectual property" in this section for further details of this licence) to use the gastric disease detection system for detecting a genetic marker known as EB virus DNA in stomach cancer. A new product to be developed from this licensed methodology known as *EB gastric* for detecting stomach cancer is expected to be launched in the third quarter of 2004 in Japan where there has been a high number of such diseases. Pre-launch commercialisation work had not commenced as at the Latest Practicable Date, but the Group aims to contract with a Japanese agent before the end of June 2004. (Please refer to the subsection headed "Future testing services" in the section headed "Statement of business objectives and strategies" for further details of this future testing service.)

In December 2002, the Company issued to the Noteholders Convertible Notes of an aggregate principal amount of HK\$21.5 million. Such proceeds were intended to be used mainly for the Group's daily operations and marketing the Group's existing and new testing services in future. To the extent that the net proceeds of the Convertible Notes, which amounted to HK\$21.1 million, are not immediately applied for the above purpose, it is the present intention of the Directors that such net proceeds will be placed on short-term deposits with banks or other authorized financial institutions. As at the Latest Practicable Date, an amount of approximately HK\$7.9 million has been utilised for the daily operations of the Group, financing the Listing process and patent applications for the Chinese University and the Group. The Directors expect that approximately HK\$10.0 million will be used for the daily operating expenses of the Group; and the remaining approximately HK\$3.2 million as marketing of foetal maternal and cancer testing products in the PRC, Australia and Japan as to approximately HK\$100,000 from the Latest Practicable Date to 30 June, 2004 and as to approximately HK\$620,000 for each of the six-month period from 1 July, 2004 to 31 December, 2006. The Initial IPO Conversion will take place prior to the Listing Date, unless the Noteholders have given notice requiring early redemption, and result in a total of 25,800,000 Shares being issued to the Noteholders. (Please refer to the subsection headed "Convertible Notes" in the section headed "Share capital" for further details of the terms of the Convertible Notes.)

On 6 June, 2003, the Group entered into a research collaboration agreement with the Chinese University to conduct research regarding the treatment and diagnosis of SARS. Pursuant to the research collaboration agreement, each party thereto has to keep all the research materials confidential. Inventions made pursuant to such agreement may be owned by the Chinese University alone (if solely developed by the University) or the Company alone (if solely developed by the Company) or jointly owned with the percentage of each party to be mutually agreed in good faith with a subsequent agreement later. It is contemplated under such agreement that the research work would be completed within 18 months and it may be terminated unconditionally by either party upon 30 days' notice to the other party. On 15 October, 2003, the Group was granted by the Chinese University a

non-exclusive licence regarding the use of technology for early diagnosis of SARS which was developed by the Chinese University on its own. (Please refer to the description of the licence numbered 10 in the table under the subsection headed “Intellectual property” in this section for further details of this licence.) The Group also filed its own patent application in relation to a sensitive methodology for the detection of SARS. With a decline in the occurrence of SARS, the research collaboration on SARS is currently inactive.

#### *Products and services development*

In August 2002, the Group launched its third testing service called *EBcombo*, which combined the traditional methodology of testing EB virus associated cancer using antibodies that shows the history of infection and *EBeasy* which shows the presence or absence of cancer on a real time basis. Before this testing service was introduced to the market, the Group studied related publication and other academic materials to compare *EBcombo* and other tests available in the market in terms of its sensitivity and specificity in detecting cancer. An informal survey was also undertaken to assess these findings by applying *EBcombo* on a trial basis to patients suffering from nasopharyngeal cancer known to Dr. Yeung. The survey conducted by Dr. Yeung was done by requesting the permission of certain of his former nasopharyngeal carcinoma patients to have free blood tests performed by Professor Lo’s team in the Department of Chemical Pathology of the Chinese University. The test results were compared to the clinical conditions of the patients at the time. The results were satisfactory. The steps involved in analysing *EBcombo* before its launch were relatively more simple since *EBcombo* consisted of two testing services that had been successfully commercialised for some time. By combining these technologies, *EBcombo* shows both history of EB virus infection and detects cancer as in real time and is therefore expected to give an enhanced degree of accuracy and this testing service is recommended for periodic screening. The *EBcombo* is offered to most of the major private laboratories in Hong Kong. *EBcombo*, like *EBgene* and *EBeasy*, is also based on the PDx Technology and it falls within one focused line of business of the Group.

In tandem with the growing number of the Group’s marketable testing services, the Group provided customer support services through a hotline attended by three staff members (including one senior management staff member) with biosciences background to answer questions from doctors and patients relating to the Group’s testing services.

#### *Research development and technology advancement*

In July 2002, building on the Group’s success in detecting the smallest amount of abnormal DNA in the blood plasma of liver cancer patients, the Group’s research team extended its research into applying the test to prostate cancer patients.

By October 2002, the sensitivity of the Group’s test for liver cancer was improved by ten times as a result of advancement in the underlying technology.

In November and December 2002, the Group and Spring Biotech jointly conducted a community research programme for screening test for cancer. The programme was successful with a high participation by volunteers who took blood samples for trial tests for the screening test for cancer to be carried out in January 2003. These trial tests were carried out by the Group’s laboratory personnel.

The trial test results from the programme served as primary data for further research activities. As Spring Biotech is an Initial Management Shareholder, the community research programme jointly conducted with Spring Biotech is a continuing connected transaction for the Company under the GEM Listing Rules. (Please refer to the subsection headed “Connected transactions” in this section for further details.)

In February 2003, the laboratory of the Group was relocated from Shatin to Central, Hong Kong. The relocation was mainly because Shatin was too far from the city centre such that pick-up of blood samples had been an inconvenience as sales increase with requests from far away places in Hong Kong.

In March 2003, the Group was granted an exclusive license by the Chinese University in relation to the PDx Technology which specifies which RNA (hCG (human chorionic gonadotropin) and HPL (human placental lactogen)) are used to identify foetal diseases including pre-eclampsia, trisomy 18 and Down’s syndrome (Please refer to the description of the licence numbered 9 in the table under the subsection headed “Intellectual property” in this section for further details of this licence). The Group’s foetal maternal tests would be based on this license. The test for Down’s syndrome is expected to be launched in the third quarter of 2004 in Hong Kong and the PRC. (Please refer to the subsection headed “Future testing services” in the section headed “Statement of business objective and strategies” for further details of this future testing services.)

Both the foetal maternal test using the foetal RNA and the SARS test are based on the PDx Technology and they therefore fall within one focused line of business of the Group.

Product development and enhancement work performed by the Group for existing and future products during this period includes (i) the launching of the combination test *EBcombo* had been made; (ii) the provision of a hotline had been made by the Group that is attended by one of the Group’s scientific staff to answer any questions from patients and doctors on the science and service of the Group’s existing products; (iii) the improvement of the sensitivity of the methylation specific PCR test for liver cancer (a future test for a genetic alteration in liver cancer) was achieved by using proprietary methodologies; (iv) improvement of the sensitivity of SARS testing was also achieved by using a proprietary technique, the methodology of such resulted in a patent filed by Dr. Yeung and later transferred to the Group; (v) further enhancement of the EB virus line of products by the first description of *EBsens* and *EBonco* was achieved, the methodology of which was a result of a patent filed by Dr. Yeung and later transferred to the Group; and (vi) further new revisions to the reporting format of *EBgene* and *EBeasy* were made to reflect new clinical materials and indications.

#### *Funding arrangements*

The operation of the Group during this period was funded by internal resources, Shareholders’ loans and subscription monies from the issue of the Convertible Notes to the nine Noteholders. In December 2002, the Company issued to the Noteholders Convertible Notes of an aggregate principal amount of HK\$21.5 million. The net proceeds from the issue of Convertible Notes amounted to approximately HK\$21.1 million after deduction of expenses payable by the Company in relation to



the issue of Convertible Notes. Such net proceeds were intended to be used mainly for the Group's daily operations and marketing the Group's existing and new testing services in future. To the extent that the net proceeds of the Convertible Notes, which amounted to HK\$21.1 million, are not immediately applied for the above purpose, it is the present intention of the Directors that such net proceeds will be placed on short-term deposits with banks or other authorized financial institutions. As at the Latest Practicable Date, an amount of approximately HK\$7.9 million has been utilised for the daily operations of the Group, financing the Listing process and patent applications for the Chinese University and the Group. The Directors expect that approximately HK\$10.0 million will be used for the daily operating expenses of the Group; and the remaining approximately HK\$3.2 million as marketing of foetal maternal and cancer testing products in the PRC, Australia and Japan as to approximately HK\$100,000 from the Latest Practicable Date to 30 June, 2004 and as to approximately HK\$620,000 for each of the six-month period from 1 July, 2004 to 31 December, 2006. The Initial IPO Conversion will take place prior to the Listing Date, unless the Noteholders have given notice requiring early redemption, and result in a total of 25,800,000 Shares being issued to the Noteholders. (Please refer to the subsection headed "Convertible Notes" in the section headed "Share capital" for further details of the terms of the Convertible Notes.)

For the period between July to November 2002, additional loans from Shareholders and New Oxford Management Limited, a connected person of the Company, of approximately HK\$3.7 million were raised by the Group; of which HK\$0.6 million due to Spring Biotech will be settled on 17 June, 2004 and the remaining of HK\$3.1 million together with the Group's loans from Shareholders of HK\$2.7 million and New Oxford Management Limited of HK\$2.2 million, totalling approximately HK\$8 million was fully capitalized as part of the Reorganisation into shares of the Company's subsidiaries. (Details of such capitalisation of the Shareholders' loans of the Group are set out in the section headed "Changes in the share capital of the subsidiaries of the Company" in Appendix V to this prospectus.)

### *Sales and marketing*

As part of its sales and marketing strategy, the Group focused on increasing awareness of the public and the medical community of its new cancer testing services that may detect up to 10% of all cancers locally via a blood test carried out annually. During August 2002, the Group stepped up its marketing efforts on promoting its third product known as *EBcombo* to local laboratories and physicians through newspaper advertisements and seminars. The Group invited a number of medical laboratories in Hong Kong to distribute the Group's testing services.

The Group's sales and marketing strategies during this period focused on conducting further exploration of the EB virus series of tests as laboratory services in Hong Kong and a further expansion of the network of laboratories that offer this service. Because of the drop in price in the real time PCR machine and the expansion of the number of hospitals that can now own such a machine in Hong Kong and the PRC, a new marketing strategy would be adopted to develop kits for existing products such as *EBgene* and *EBeasy* for shipment to these hospitals. The reason for such a change of strategy was that it would be very costly to open a chain of laboratories to do the service for only a few specialised products. Previously, when there were very few hospitals owning real time PCR machines, it seemed to be the only choice for the Group. However, the Group presently has the opportunity to let each individual hospital to do its own tests and market its own services with an advantage that these

hospitals would market the services to their own doctors without the Group doing so. To reinforce the sales and marketing strategies as mentioned, the Group also decided that it would also be best to use data and expertise collected during the first two years to apply for FDA approval, the success of which could galvanise the local, PRC and Japanese market as well as paving the road for a global market expansion later on.

With an aim of achieving the above-mentioned sales and marketing strategies, the Group had (i) collected scientific data and initiated the first preparation in filing for FDA approval for the *EBgene* test kit; (ii) made further advertising in newspapers; (iii) arranged to meet with other local laboratories to join in and market tests from the Group; (iv) conducted direct marketing by mailings to all doctors in Hong Kong for medical indications of *EBgene* and *EBeasy* and patients; and (v) held a medical professional seminar given by Dr. Yeung to the Chinese Doctors Association on 6 October, 2002 and by Professor Lo to Hong Kong Medical Association CME with over 200 Hong Kong doctors on 14 January, 2003, and a number of public education seminars during September 2002 to May 2003.

### *Customers*

The Group's major customers are laboratories and hospitals in Hong Kong. Other customers also include doctors, clinics of local universities and clinical research programmes conducted between the Group and other healthcare organisations. During the year ended 30 June, 2003, the Group's turnover amounted to HK\$1,339,250 comprised of *EBgene* of HK\$477,660, *EBeasy* of HK\$524,940, *EBcombo* of HK\$31,770 and other future tests under research and development of HK\$304,880. The Group's sales to its largest customer and five largest customers were HK\$483,380 and HK\$844,980, respectively, representing approximately 36.1% and 63.1% of the Group's sales for the year ended 30 June, 2003. Sales to Spring Biotech amounted to HK\$483,380 during the year ended 30 June, 2003, representing approximately 36.1% of the Group's sales for the year.

Under the community research programme, sales to Spring Biotech are mainly *EBeasy* and some of the future tests (as described under the section headed "Future testing services" in the section headed "Statement of business objectives and strategies") which are still under research and development.

Save for the sales to Spring Biotech, none of the Directors, their associates or any of the Shareholders who owns more than 5% of the issued share capital of the Company had any interest in any of the five largest customers of the Group.

### *Set backs*

The location of the Group's laboratory was too far from the city centre (being in Shatin), such that pick-up of samples had been a problem as sales increase with requests from far away places in Hong Kong.

One major breakdown for three weeks of the Group's main PCR machine had resulted in delays for delivery of some of the test results to doctors for their diagnosis.

The SARS crisis had severely affected the sales of the Group as many doctors had refrained from seeing patients at the time. This condition lasted approximately three months.

*Staff*

All of the employees of the Group were stationed in Hong Kong. As at 30 June, 2003, the Group had 11 full-time employees who were engaged in the following functions:

Management	2
Sales and marketing	3
Research and development (including implementation of laboratory tests for the provision of the Group's testing services)	3
Administration and finance	3
 Total	 11

**Period from 1 July, 2003 to the Latest Practicable Date**

During the period from July 2003 to the Latest Practicable Date, the Group continued negotiations with major laboratories in Japan and in Australia (please refer to sub-section headed "Regulatory requirements" under the section of "Industry overview" for details on regulatory compliance issues) with a view to introducing the Group's existing cancerous testing services and foetal maternal diseases testing services in these countries. As at the Latest Practicable Date, these negotiations were still at a preliminary stage. (Details of the regulatory requirements in respect of these jurisdictions are set out in the sub-section headed "Regulations requirements" in the section headed "Industry overview" in this prospectus.)

The Group is also seeking complimentary technologies that have market potential while increasing the business opportunities of the Group's products at the same time.

*Research development*

The Group continued its research to see if the reactivation of EB virus in the human body is correlated to the formation of cancer cells other than EB virus associated cancers like nasopharyngeal cancer, stomach cancer and lymphomas. As at the Latest Practicable Date, the research was at a preliminary stage. Through seminars held with the public, the Group also performed community research on its tests for liver cancer and general screening test for cancer.

As mentioned before, seminars for doctors, patients and the general public had led to recruitment of individuals participating in some of the Group's community research programmes. The results of the *EBeasy* test had enabled the Group to assemble data for good positive and negative predictive values for the general population that are valuable in expanding the indications of its use. In addition, substantial progress had been made in the development of *EBsens*. *EBsens* is a newly developed test that incorporates proprietary methodology developed exclusively by the Group that can increase the sensitivity of the *EBgene* test many folds over the existing one. This product is targeted to be available

by the second half of 2004. Research performed in the sub-typing of the EBV genome also showed that one or two sub-types are statistically more common in the EB virus associated cancers in Hong Kong and elsewhere in the world. The Group had performed a first series of research into the development of *EBonco*, a product that will show the sub-types of the circulating EBV genomes in patients that are chronically reactivating the virus. The use of *EBonco* may have the ability to predict which segment of the population is more prone to develop EB virus associated cancers such as nasopharyngeal cancer, EB virus associated stomach cancers and lymphomas.

The Group took a major step in product development when the Group assembled the *EBgene* and *EBeasy* tests in kit form. Each test kit consists of (i) a properly labelled box with clinical indications of use; (ii) sufficient storage and expiration instructions; (iii) lot and product number; (iv) a fully user friendly manual so that any well-trained technician can use the kit without further instructions from the Group; (v) a small summary of materials and contents pasted on the flip side of the cover; (vi) colour-coded tubes for the different master mixes, standards and reagents; and (vii) scientific data and references. The Group has also assembled similar kit forms of the foetal maternal tests. Previously, when the Group only provides testing services, only a tube was supplied for collection of blood samples.

On the other side, the Group has initial success in setting up a more sensitive form of *EBgene*, which was named *EBsens* and would be ready to launch some time in the second half of 2004. Furthermore, the Group has started the initial experimentation of the product enhancement in determining whether chronic active carriers of the EB virus could have increased cancer tendency by the test *EBonco*. Preparation and testing work is estimated to continue throughout the latter part of 2004.

#### *Funding arrangement*

As at 31 December, 2003, the Group had cash and bank balances of approximately HK\$15.0 million. The Group has put such surplus cash into saving and/or fixed deposits with financial institutions in Hong Kong. The minimal interest income of HK\$21,221 for six months ended 31 December, 2003 was due to the generally prevailing low interest rate. Under the terms of the Convertible Notes, before Listing, the Group cannot purchase or acquire whether for cash, securities, or other consideration, of any other entity or business, or the invest in or purchase any securities or equity interest in any other entity, except for the establishment of a wholly owned and controlled subsidiary companies in Hong Kong or overseas. As at the Latest Practicable Date, out of the net proceeds of the issue of the Convertible Notes which amounted to HK\$21.1 million, an amount of approximately HK\$7.9 million has been utilised for the daily operations of the Group, financing the Listing process and patent applications for the Chinese University and the Group. As to the remaining portion of the net proceeds from the Convertible Notes subscription of approximately HK\$13.2 million, the Directors expect that approximately HK\$10.0 million will be used for the daily operating expenses of the Group; and the remaining approximately HK\$3.2 million as marketing of foetal maternal and cancer testing products in the PRC, Australia and Japan as to approximately HK\$100,000 from the Latest Practicable Date to 30 June, 2004 and as to approximately HK\$620,000 for each of the six-month period from 1 July, 2004 to 31 December, 2006.

*Sales and marketing*

The Group continued its efforts on promoting its new cancer and foetal maternal testing services by introducing it to the public and the medical community. The Group offered its foetal maternal tests free of charge to the public through a seminar held in August 2003. The initial free of charge for the foetal material products was only for marketing and community research purposes at the initial stage only. This will help to let the community doctors to use and understand the Group's testing services before it is launched. The foetal maternal testing services are expected to be formally launched in Hong Kong in September 2004 as test for Down's Syndrome.

As mentioned above, the first kit form of the test *EBgene* was developed in November 2003. It was marketed to a few local hospitals with available PCR machines. This was followed three weeks later by the first sale to a local private hospital that will use *EBgene* and *EBeasy* as the test for nasopharyngeal carcinoma as well as a screening tool for all their physical examinations. The kit form of *EBgene* and *EBeasy* is also based on the PDx Technology and in the same focused line of business of the Group.

On 28 November, 2003, the Group filed for pre-marketing approval registration of the test kit of *EBgene* to the Food and Drug Administration (FDA) of the US and commenced the preparation for a similar application to the State Food and Drug Administration (SFDA) of the PRC. The target date for filing to the SFDA is 31 July, 2004. This would pave the way for overseas sales of this product if these applications were to be successful. The Group expected the date of grant of such application (both FDA & SFDA) to be one year after the submission of application.

The Group's sales and marketing strategies during this period focused on (i) the marketing of the kit form of the tests wherever there are hospitals that own real time PCR detection systems in Hong Kong, the PRC and other nearby countries; (ii) the offering of laboratory service will still be available to communities and countries that totally lack the expertise to operate a real time PCR detection system; and (iii) application to the FDA on the clinical indications of *EBgene* in the kit form.

With an aim to achieving the above-mentioned sales and marketing strategies, the Group had continued (i) local marketing efforts to doctors, patients and laboratories by sending postcards to all Hong Kong doctors posted on 6 October, 2003; (ii) marketing of the *EBgene* and *EBeasy* kits to local hospitals that have installed a real time PCR machine; and (iii) arranging a number of public and professional education seminars from August to December 2003.

On 2 March, 2004, the Group and Spring Biotech (China) Limited mutually agreed to terminate the licencing agreement dated 25 February, 2002 due to a change in the marketing strategy of the Group in respect of the PRC market from a focus of operating testing services in the PRC to a focus on the sale of test kits.

## BUSINESS

### *Customers*

The Group's major customers are laboratories and hospitals in Hong Kong. Other customers also include doctors, clinics of local universities and clinical research programmes conducted between the Group and other healthcare organisations. During the six months ended 31 December, 2003, the Group's turnover amounted to HK\$904,550 comprising of *EBgene* of HK\$228,720, *EBeasy* of HK\$475,630, *EBcombo* of HK\$9,510 and other future tests under research and development of HK\$190,690. The Group's sales to its largest customer and five largest customers were HK\$496,380 and HK\$674,590 respectively, representing approximately 54.9% and 74.6% of the Group's sales for the six months ended 31 December, 2003. Sales to Spring Biotech amounted to HK\$496,380 during the six months ended 31 December, 2003, representing approximately 54.9% of the Group's sales for the period.

Under the community research programme, sales to Spring Biotech are mainly *EBeasy* and some of the future tests (as described under the section headed "Future testing services" in the section headed "Statement of business objectives and strategies") which are still under research and development.

Save for the sales to Spring Biotech, none of the Directors, their associates or any of the Shareholders who owns more than 5% of the issued share capital of the Company had any interest in any of the five largest customers of the Group.

### *Set backs*

The Group's initial application of *EBgene* to the State Food and Drug Administration of the PRC had been returned. Certain new requirements had come into effect at the time the Group submitted its application. The Group is in the process of compiling additional material and has planned to re-submit a new application to the State Food and Drug Administration of the PRC in compliance with the new forms in July 2004.

One of the Group's new research projects known as telomere length estimation in relation to a potential new test failed to deliver the stability of results that the Group needed. This new research was abandoned.

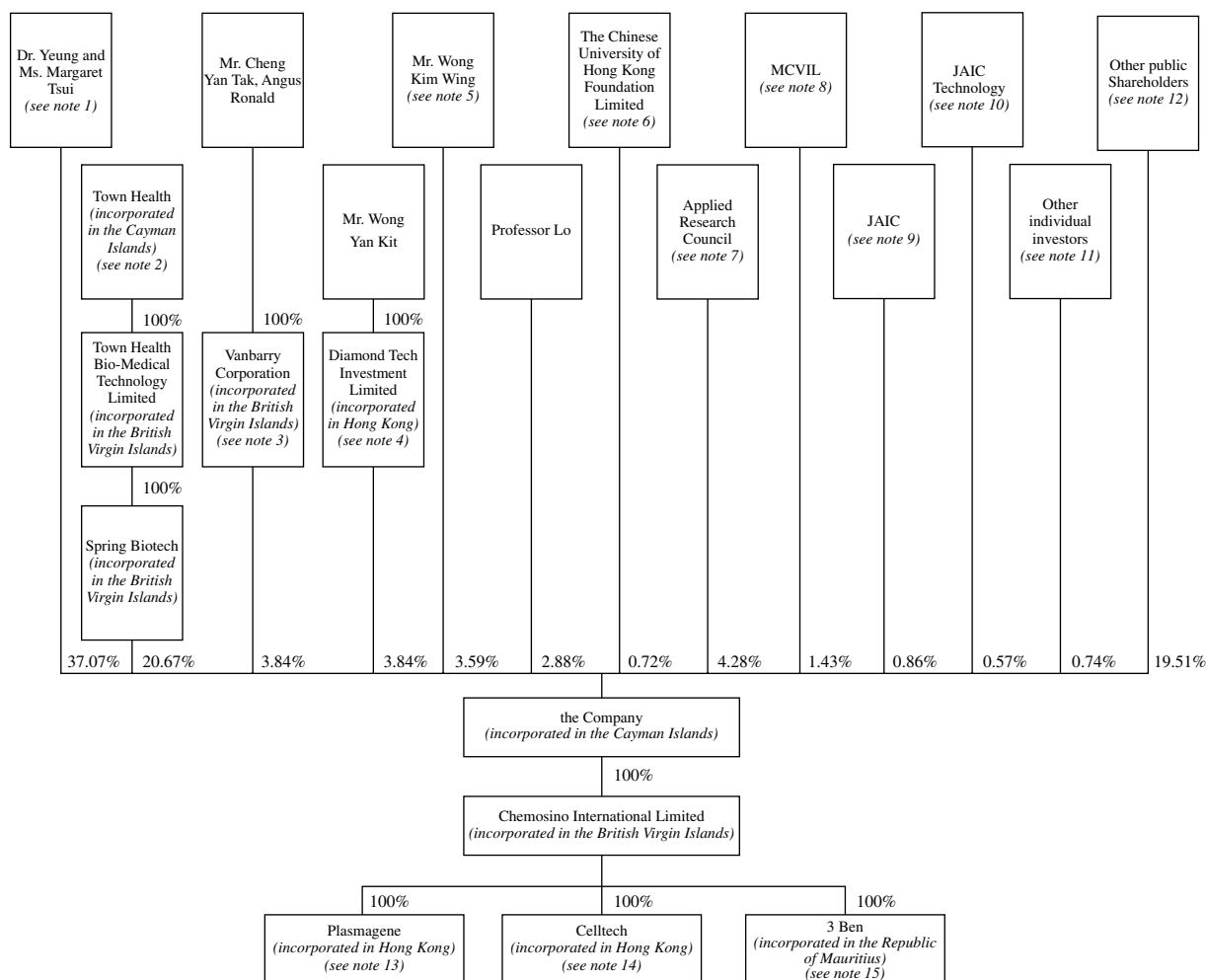
### *Staff*

All of the employees of the Group were stationed in Hong Kong. As at the Latest Practicable Date, the Group had 13 full-time employees who were engaged in the following functions:

Management	2
Sales and marketing	3
Research and development (including implementation of laboratory tests for the provision of the Group's testing services)	3
Administration and finance	5
	<hr/>
Total	13
	<hr/> <hr/>

**GROUP STRUCTURE**

The following chart sets out the structure of the Group immediately following completion of the Share Offer, the Capitalisation Issue and the Initial IPO Conversion, taking no account of any Shares to be allotted and issued upon the exercise of any options granted under the Share Option Scheme or the Right of First Refusal Agreement, the First Post IPO Conversion, the Second Post IPO Conversion and the general mandates to issue Shares referred to in Appendix V of this prospectus:



*Notes:*

- (1) Dr. Yeung and Ms. Margaret Tsui held 2,368,454 Shares and 119,170,370 Shares, respectively. Ms. Margaret Tsui is the wife of Dr. Yeung.
- (2) Town Health is a company whose shares are listed on GEM. As at the Latest Practicable Date, it was indirectly beneficially owned as to approximately 13.08% by Dr. Cho Kwai Chee, directly beneficially owned as to approximately 0.1% by Mr. Cho Kam Luk, a Director and approximately 86.82% by other directors of Town Health and public shareholders.
- (3) Vanbarry Corporation is wholly beneficially owned by Mr. Cheng Yan Tak, Angus Ronald who is a Director.

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- (4) Diamond Tech Investment Limited is wholly beneficially owned by Mr. Wong Yan Kit who is an Initial Management Shareholder.
- (5) Mr. Wong Kim Wing is an independent third party, has no board representation in the past and is not expected to have the same in the future, and has never been involved or intends to be involved in the management or daily operations of the Group before or after the Listing.
- (6) The Chinese University of Hong Kong Foundation Limited is a non-profit company limited by guarantee incorporated to promote and develop educational and cultural programmes, scientific and technological research, hospital and related healthcare and service providers, human services programmes and other public services activities. Both Professor Lo and The Chinese University of Hong Kong Foundation Limited have had no board representation in the past and are not expected to have the same in the future, and have never been involved or intend to be involved in the management or daily operations of the Group before or after the Listing.
- (7) The Applied Research Council is a company wholly owned by the Hong Kong government. It is responsible for the control and administration of the Applied Research Fund which provides funding support to technology ventures and research and development projects. The Applied Research Council is an independent third party.
- (8) MCVIL is a limited company incorporated on 10 April, 2000 in the British Virgin Islands. It is an investment fund focusing on investments in companies with operations in China and Hong Kong. CAPI Ventures Inc. is the investment advisor of MCVIL which is managed by JAIC HK. MCVIL is an independent third party. MCVIL is beneficially owned by an insurance company based in Japan.
- (9) JAIC is a company whose shares are listed on the JASDAQ market in Japan. It specialises in the management of direct investment funds in Japan and other parts of the world. As of March 2002, JAIC managed a total of 52 funds of approximately 78 billion yen. JAIC is an independent third party.
- (10) JAIC Technology is a limited partnership established on 30 November, 2001 under the laws of Japan. It is owned by JAIC and other independent third parties. It was formed for the purpose of making equity related investments in innovative technology companies and is managed by JAIC. JAIC Technology is an independent third party.
- (11) Other individual investors are five Noteholders, namely Mr. Robert Owen who will hold 600,000 Shares, Mr. Russell Young who will hold 1,440,000 Shares, Mr. Tong Sui Bau, Mr. Lee Kam Lun, Kenyon, and Ms. Jessica Pui Han Jook, each of whom will hold 120,000 Shares on the Listing Date. They are all independent third parties.
- (12) These Shares will be distributed under the Share Offer and are regarded as being held in public hands within the meaning of the GEM Listing Rules. The Company and each of its controlling Shareholders, Initial Management Shareholders and Directors have confirmed that they and their respective associates have not entered into, and prior to the Listing, will not enter into any arrangements or agreements (other than those agreements currently disclosed in this prospectus) in relation to the Shares (or shares in the predecessor companies of the Company), including as to the price of the Shares placed to existing Shareholders or to be placed pursuant to the Share Offer.
- (13) Plasmagene is principally engaged in the research and development of the PDx Technology licensed to the Group by ISIS and the Chinese University, and the commercialisation of such technology into diagnosis testing services for detecting prenatal, cancerous and other critical illnesses.
- (14) Celltech is currently dormant. It is expected that Celltech will be principally engaged in the research and development of stem cell technology for treating cancer patients who undergo chemotherapy and replacing damaged organs and tissues in various major diseases.
- (15) 3 Ben is principally engaged in developing cancer related diagnosis based on technologies assigned by Dr. Yeung.



- (16) The public Shareholders are Mr. Wong Kim Wing, Professor Lo, The Chinese University of Hong Kong Foundation Limited, The Applied Research Council, MCVIL, JAIC, JAIC Technology, Mr. Robert Owen, Mr. Russell Young, Mr. Tong Sui Bau, Mr. Lee Kam Lun, Kenyon, Ms. Jessica Pui Han Jook and other parties who will subscribe for Shares under the Share Offer. MCVIL is managed by JAIC HK, a wholly owned subsidiary of JAIC. JAIC Technology is a limited partnership established in Japan and owned by JAIC and other third parties and was managed by JAIC. Save for these relationships, there are no relationships amongst the public Shareholders to the best of the knowledge of the Board. Immediately following the Listing Date, there will be 113,364,356 Shares held by the public Shareholders, representing approximately 34.58% of the total issued share capital of the Company.

## **EXISTING TESTING SERVICES**

### **Cancer tests**

Based on the PDx Technology, the Group has successfully commercialised and launched a number of cancer diagnostic testing services. The existing cancer tests currently available in the market are *EBgene* which is a quantitative test for EB virus associated cancer, *EBeasy* which is a symptomatic screening alternative test for detection of EB virus associated cancer at an early stage and *EBcombo*, a general screening test which combines the traditional methodology of testing EB virus using antibodies and *EBeasy*. EB virus associated cancer includes nasopharyngeal cancer and stomach cancers. All of the three tests have a sensitivity and accuracy of over 95% and specificity of around 93%. These tests measure the presence of EB virus genomes in EB virus associated cancers which account for around 5 to 10% of all cancers in the Asian region. The most common EB virus associated cancer is nasopharyngeal cancer, a kind of cancer of the nasopharynx located at the back of the nose, an area behind the nasal cavity and mouth to the larynx.

*EBgene* suits all diagnosed EB virus associated cancers such as nasopharyngeal cancer for which knowledge about the prognosis, progression and recurrence of the disease is important. This means that the *EBgene* test will guide the physician and patient throughout the treatment and follow up period. *EBeasy* gives simply a positive or negative result. It is less expensive than *EBgene* and is more economically suited for screening patients with high risks of having EB virus associated cancer. As *EBcombo* shows both the history of EB virus infection and presence of cancer in real time, this testing service is ideally suited for periodic screening of EB virus associated cancers which will give both of these results for a period from a few months to a year before each test.

Based on the knowledge and experience of the Directors in the cancer diagnostic field, *EBgene*, *EBeasy* and *EBcombo* cancer testing services are considered by the Directors to be one of the group of reliable and sensitive blood tests introduced for the detection of cancerous diseases that are developed from the PDx Technology. Particularly, the Directors believe that *EBgene* offers one of the only few reliable quantitative measurements of cancer volume by a blood test. The Directors anticipate that these testing services will supplement or replace the traditional antibody test for nasopharyngeal cancer and will allow the patients or doctors to make an informed decision before receiving CT, MRI or PET scan that are relatively more expensive and time consuming. The recent editorial article from National Cancer Institute shows the value and reliability of *EBgene*, *EBeasy* and *EBcombo*. National Cancer Institute is considered an independent and authoritative third party in the evaluation of these tests, and the official government agency for all matters related to cancer in the United States. It works under the branch of the National Institute of Health in the United States.

*EBgene*, *EBeasy* and *EBcombo* cancer tests are currently offered in Hong Kong. These three testing services are targeted at specialists and community physicians as well as patients with common ear, nose and throat symptoms. The Directors consider that these testing services have been well recognized in the local medical community as is evident from the sales generated from a wide range of physicians in the community. Following the launch of *EBgene*, *EBeasy* and *EBcombo* in November 2001, January 2002, and August 2002 respectively, the Group generated total sales from these testing services of approximately HK\$525,545, HK\$1,339,250 and HK\$904,550 during the eight months ended 30 June, 2002, the year ended 30 June, 2003 and the six months ended 31 December, 2003 respectively.

### **Foetal tests for betaHCG and HPL**

By using a non-invasive maternal blood test, the Group's foetal tests for betaHCG and HPL, which are based on the PDx Technology, allow the dynamic measurement of foetal placental hormones which may lead to an easier and more accurate diagnosis of Down's syndrome and high risk pregnancy in the future. These two testing services were first introduced into Hong Kong in August 2003 free of charge through public seminars.

### **Test for SARS**

SARS is caused by the human corona virus. The Group's test for SARS is based on the real time RNA quantification of the viral transcript of the SARS virus. The test is based on the PDx Technology. The result of this test is available within three hours. This product, marketed as *SarsDx*, was introduced into the Hong Kong market in September 2003.

### **Testing procedure**

All of the Group's testing services and products are based on the PDx Technology and fall within one focused line of business of the Group.

The testing procedure of the Group's testing services involve a number of steps. First, doctors or laboratory personnel draw a blood sample and submit it to the laboratory of the Group. The Group's laboratory will perform the relevant test following the Group's internally defined protocol. Following the testing, the Group will provide the test results to the doctors or laboratory personnel who will then inform the patients and determine the appropriate course of action. The entire testing procedure normally takes five days to complete.

### **RESEARCH AND DEVELOPMENT**

The developmental path of medical diagnostics and the commercialisation for medical use generally involves laboratory research which then leads to a laboratory finding. This is followed by pre-clinical testing which is used to prove a laboratory finding. The results of the pre-clinical testing are used to support the initial patent application and therefore need to be completed before the patent application can be filed. If the results of pre-clinical testing are proven to be satisfactory, clinical trials will be conducted at hospitals to determine an effective utilisation of the test in actual clinical

practice and to evaluate proof of medical value before the testing services are ready for diagnosis of particular diseases. This may be followed by community research programmes under which testing services offered to the community are monitored. Test results of these programmes will serve as primary data for further research activities into other applications.

The Group's R&D staff possess qualifications with a minimum of a biotechnology related Bachelor of Science degree. One of them has a master degree in Philosophy. As at the Latest Practicable Date, the Group had three staff members engaged in research and development activities carried out at the Group's laboratory situated at 5th Floor, Club Lusitano, 16 Ice House Street, Central, Hong Kong. The laboratory, together with the general office of Plasmagene occupies a gross floor area of approximately 2,238 square feet. The term of the lease is two years from 13 February, 2003 to 12 February, 2005, subject to an option to renew for another two years. During each of two years ended 30 June, 2003, the Group incurred approximately HK\$2.6 million and HK\$0.8 million respectively on research and development on future testing services and quality improvement of its existing testing services.

The Group's R&D team is supervised by Dr. Yeung, which usually meets three times a week for discussion of topics, progress and results. Professor Lo was more involved as the Chinese University's designated consultant at the initial stages of the Group's development, when he supervised the setting up of the Group's laboratory and technology transfer under the Consultancy Agreement, but his involvement has gradually lessened when the Group's laboratory began to be able to operate independently. The Group had conducted R&D projects on its own, including the development of the *EBsens* high sensitivity testing, the EBV lytic promoter sub-typing testing and the SARS testing. Dr. Yeung has all along been involved in the supervision of the Group's R&D initiatives, daily operations and execution.

In addition to its own research and development activities, the Group has maintained close cooperative relationships with the Chinese University and the Town Health group to perform joint research activities. (Please refer to the sections headed "Relationship with Professor Lo and the Chinese University" and "Relationship with Initial Management Shareholders" for details of these cooperative relationships.) The Directors believe that co-operation with experienced partners in the medical community will enhance the research capability of the Group and accelerate the development of future testing services by the Group. Pursuant to the Consultancy Agreement, Professor Lo acts as the consultant designated by the Chinese University to Plasmagene and provides advice on the establishment of a laboratory of the Group to conduct prenatal and cancer diagnostic testing services for a consideration of HK\$1.5 million payable semi-annually until 14 August, 2004 and 1% and 4% of the issued share capital of Plasmagene was allotted and issued to The Chinese University of Hong Kong Foundation Limited and Professor Lo, respectively.

Under a memorandum of understanding entered into on 10 July, 2002 between Plasmagene and the Chinese University, the two parties agreed to cooperate on future research and development activities.

**OPTIONS TO BE GRANTED TO THE CHINESE UNIVERSITY**

Under the Right of First Refusal Agreement, the Company will be offered a right of first refusal for the grant by the Chinese University of a royalty-bearing exclusive licence to use and commercially develop certain technologies and inventions relating to the PDx Technology and other non-invasive diagnostic technique for detecting cancer and foetal diseases developed by Professor Lo during his employment with the Chinese University. As at the Latest Practicable Date, these technologies and inventions related to the application of the PDx Technology for detecting cancerous and prenatal diseases as well as other major diseases, namely pleural effusion and stroke. (Please refer to the section headed “Intellectual property” in this section for details of the scope and nature of the technologies licensed by the Chinese University to the Group.) In the event that the Chinese University proposes to grant any licences for the use of such technologies, it will notify the Company of such intention and offer in writing to grant the Company an exclusive license in respect of the relevant technology. The Company will notify the Chinese University within 14 days of its receipt of notification from the Chinese University whether the Company wishes to accept or reject the offer. Based on the Directors’ experience, the 14-day notification period is considered reasonable. If the Company does not wish to take up the offer, then the Chinese University will be free to grant licences in respect of the relevant technology and, or invention to any other party. The term of this agreement is for four years commencing from the Listing Date.

In consideration of the right of first refusal granted to the Company, the Company agrees to grant to the Chinese University or such persons as the Chinese University may direct (including trustees of any funds) (the “Option Holders”) options to subscribe for such number of Shares up to an aggregate maximum sum of HK\$4,600,000 after the Listing (meaning maximum amount of HK\$1 million, HK\$1.1 million, HK\$1.2 million and HK\$1.3 million for the four financial years from 2004 to 2007, respectively), being the aggregate monetary value of the options to be granted to the Option Holders which is calculated by reference to the exercise price per Share, being the higher of, the closing price of the Shares as stated in the daily quotations sheet issued by the Stock Exchange on the date of the grant of the options to the Option Holders which must be a business day; and the average closing price of the Shares as stated in the daily quotations sheets issued by the Stock Exchange for the five business days immediately preceding the date of the grant of the options to the Option Holders, in accordance with the GEM Listing Rules over a period of four years. Such options are not intended to be granted under the Share Option Scheme. Under Chapter 21 of the GEM Listing Rules which apply to options, warrants and similar rights (other than options granted under the Share Option Scheme), where the Company grants options, the Shares to be issued on exercise of the options must not, when aggregated with all other Shares which remain to be issued on exercise of any other subscription rights, if all such rights were immediately exercised, whether or not such exercise is permissible, exceed 20% of the total issued Shares at the time such options are issued. Options granted under the Share Option Scheme are excluded for the purpose of this limit. The Directors will grant the options under the general mandate obtained from Shareholders which is in force at the time of grant. In the event that the whole or part of such options are limited by the GEM Listing Rules and not granted by the Company, the Chinese University shall be entitled to the difference (being the difference between the aggregate sum of options agreed to be granted and the aggregate sum of options actually granted) in cash. The amount of HK\$4.6 million is based on the Directors’ estimate of the technology contribution to be made by the Chinese University that may be taken to be the Company’s research expenditure during the first two years of its operation after Listing and the commercial negotiations

carried out between the Group and the Chinese University on an arm's length basis. Such grant of options may be made by the Company annually on the first business day of the first day of each financial year of the Company after the Listing for a period of four years (subject to a minimum six-month moratorium period following the date of the grant of the relevant options by the Company before the relevant options may be exercised by the Chinese University). The number of options to be granted to the Chinese University will depend on the market prices of the Shares during the four-year period which in turn will affect the number of Shares to be issued to the Chinese University by the Company should the Chinese University exercise its options. Upon the expiry of the moratorium period, the Chinese University may exercise the relevant options at any time over a further period of four and a half years in accordance with the GEM Listing Rules. Should the closing price per Share be low due to adverse market conditions, a substantial number of Shares may be issued by the Company to the Chinese University if the relevant options are exercised by it (even though such number is governed by the GEM Listing Rules) as the exercise price per Share of such options is calculated by reference to the closing price of the Shares on the date of grant of the options to the Chinese University or the five business days preceding such date of grant. While the research activities carried out by the Chinese University at its own laboratories are independent of the Group, the Directors are of the view that this arrangement is beneficial to the Group given Professor Lo's experience in the medical diagnostic industry. It is anticipated that the Group may, from time to time and subject to agreement by the parties, be granted further licences for the use of relevant research findings of the Chinese University.

A joint advisory committee has been established to oversee the overall management of the research and development activities carried out at the Group's laboratory, including detailed planning for use of research and development funds. The committee comprises of four members, one of whom is nominated by the Chinese University. Additionally, the Group co-operates with the Town Health group to conduct community research programmes that use the Group's testing services for detecting cancerous diseases.

## **SUPPLY OF MATERIALS**

The Group acquires from its suppliers pre-assembled kits for blood tests and other related diagnostic studies. Other materials required by the Group include common laboratory reagents and chemicals and laboratory accessories such as pipette tips, micro-centrifugation, gloves and needles. For the two years ended 30 June, 2003 and the six months ended 31 December, 2003, the amount of purchases of materials from the five largest suppliers of the Group respectively accounted for approximately HK\$253,475, HK\$292,942 and HK\$362,076, representing approximately 94.9%, 93.4% and 95.0% of the total purchases of the Group. The amount of purchase of materials from Applied Biosystems Hong Kong Limited, the largest supplier of the Group, accounted for approximately HK\$131,769, HK\$125,713 and HK\$174,748, representing approximately 49.4%, 40.1% and 45.9% of the total purchases of the Group during the respective year. The Group did not encounter any major problems in sourcing materials during the Track Record Period. None of the Directors, their associates or any of the Shareholders who owns more than 5% of the issued share capital of the Company had any interest in any of the five largest suppliers of the Group.

Purchases of materials by the Group are principally denominated in Hong Kong dollars and United States dollars and are normally settled in cash, cheques or telegraphic transfer within 30 days from the date of the suppliers' invoices. Cash settlement represented approximately 36% of the total purchases of pharmaceutical and laboratories supplies for the year ended 30 June, 2002 with no cash settlement since the year ended 30 June, 2003.

Purchases of material are supervised by Dr. Yeung and a research associate. The Group intends to keep its pharmaceuticals and other materials to a minimum level as these materials usually have a life of one year. Inventories are stated at the lower of cost and net realisable value.

## **PRODUCT DEVELOPMENT**

The Group conducts ongoing research to perfect the Group's existing testing services and identify new effective diagnostic methodologies for early detection of prenatal and cancerous diseases as well as other major illnesses, and commercialise the research results into marketable testing services. The Group will also seek to broaden the scope of testing services offered by identifying additional commercial applications of the PDx Technology licensed to the Group by ISIS and the Chinese University.

As at the Latest Practicable Date, the Group had a total of eleven future testing services that are in various stages of development and which are expected to reach the market in the coming two years. (Please refer to the subsection headed "Future testing services" in the section headed "Statement of business objectives and strategies" in this prospectus for further details of the Group's future testing services.) Subject to satisfactory progress of the clinical trials of these testing services, the Group intends to file additional patent applications under its own name to cover these new discoveries following the Listing.

## **INTELLECTUAL PROPERTY**

The Group's success depends in part on its ability to obtain intellectual property protection on its testing services. One of the earliest patents of the PDx Technology that is licensed to the Group for use in commercialising into testing services is owned by ISIS, a subsidiary of Oxford University. This patent which covers Australia and Hong Kong was granted to ISIS on 4 March, 1998 and 11 September, 2003 respectively. The related patent applications covering Japan have been filed by ISIS and are pending as at the Latest Practicable Date. Under a licence agreement dated 22 June, 2001, Plasmagene was granted by ISIS an exclusive licence to use the PDx Technology for its research related product commercialisation in Hong Kong, China, Australia and Japan for a period of seven and ten years commencing from 22 June, 2001, being the date of the licence agreement in Australia and the PRC, respectively, and seven years from the date the related patent is granted to ISIS in Hong Kong and Japan. The Group was also granted an option to renew this licence for a further period from the date the licence expires and continuing for so long as the commercial practice of the technology concerned is covered by a patent in the relevant jurisdictions, subject to the Group meeting a minimum cumulative aggregate royalty payment to ISIS of about HK\$7 million in 2008. The minimum cumulative aggregate royalty payment would require a minimum cumulative sales of approximately

HK\$57.1 million in 2008. This licence applies to the Group's Rhesus D test and the foetal sex test for X-linked recessive diseases. The Rhesus D test applies to countries of Caucasian population only and is not expected to target the PRC market. The foetal sex test for X-linked recessive diseases is not expected to target the PRC market because of the possible use of this test for sex selection.

On 6 September, 2002 and 8 April, 2004, Dr. Yeung assigned to 3 Ben his intellectual property rights relating to the use of FDG for treating cancer patients in the USA and Taiwan respectively for HK\$1.00 each.

On 24 September, 2003, Dr. Yeung assigned to Plasmagene his intellectual property rights relating to the use of a sensitive methodology for detection of SARS for HK\$1.00.

On 17 February, 2004, Dr. Yeung assigned to Plasmagene his intellectual property rights relating to the use of the technology of a combination EBV DNA test for EBV sub-types of the promoter region of the lytic promoter gene BZLF1 that are more prone to cancer formation for HK\$1.00.

Prior to the assignments, Dr. Yeung himself had owned the intellectual property rights as an inventor or co-inventor of such patent applications.

Additionally, the Group has been granted a number of exclusive licences by the Chinese University to use its research findings which form the subject of patent protection or patent application. The Group has also been granted by F. Hoffman-La Roche Limited a non-exclusive licence to practise the polymerase chain reaction technique to facilitate certain diagnostic procedures. The licence granted by F. Hoffmann-La Roche Limited will expire in March 2006. The patents it holds will have expired by then so that no royalties would be payable under that licence after that date.

The Group has been putting its resources to support patent applications in technologies that it does not own but in return, it would expect to have the exclusive use of the license for the total life span of the patents (usually approximately 20 years). As such, the Group's capitalised development costs for a particular test will be amortised over its best estimated useful life and will not exceed the life of that particular patent licence covered. The Directors are of the view that this is a more cost effective method in obtaining licensed technologies as opposed to having to bid for the exclusive licence and compete with others, which would usually result in higher costs. In deciding to support a patent application, the Group would have to exercise judgement based on the patentability and commercial value of the invention. The Directors also believe that this method would also help create a better working relationship with patent owners such as the Chinese University. The Directors consider that the success of this is evidenced by the official and unofficial granting of three licences to use and develop various US patents application since the process as referred to in the licences numbered 2, 4 and 8 below.

The Group has not been subject to any intellectual property infringement claims during the Track Record Period.

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As at the Latest Practicable Date, the licences held by the Group are as follows:

Date of agreement	Type of licence	Licensor	Licensee	Scope of licence	Location	Effective period	Royalty payment <i>(Note 6)</i>	Remarks
1.	29 May, 2001 Non-exclusive licence	International filing of the two patents (Registration Nos. HK0940849 and HK0940840) by F. Hoffmann — La Roche Limited were made on 27 March, 1986. Patent No. HK0940849 was granted in the United Kingdom on 20 January, 1993 and registered in Hong Kong on 18 August, 1994. Patent No. HK0940840 was granted in the United Kingdom on 16 December, 1992 and registered in Hong Kong on 18 August, 1994.	Plasmagene	to practise the polymerase chain reaction technique to facilitate the diagnostic procedure for studying a specific gene or its expression in blood plasma or serum	Hong Kong	29 May, 2001 to 27 March, 2006 subject to renewal of patents	9% of net revenue <i>(Note 8)</i> paid within 60 days from the last day of each half year. No royalty payment since 2006 due to the life of patent would have expired and technology would be open to the public	for the use of the PCR machine for commercial purposes, the technology will run out of its patent life as of 2006. There is no need for renewal as the technology would be open to the public and no royalties would be payable
2.	4 June, 2001 Exclusive licence	the Chinese University	Plasmagene	to use the technology titled "Non-Invasive Prenatal Monitoring" which includes the study of RNA in blood plasma or serum and to sub-license such technology <i>(Note 1)</i>	USA, the European Union, Australia, Hong Kong, Japan and the PRC	20 years from 22 June, 2001 or upon expiry of the licensed patent, whichever is later	Initial payment of HK\$100,000, plus HK\$100,000 upon granting a licensed patent in each agreed country, and a sum between HK\$10,000 and HK\$35,000 to be agreed between the parties after assessing the population of the relevant country to which the licensed patent applies provided the aggregate amount to be paid will not exceed HK\$1,000,000, and aggregate amount of royalty not less than HK\$3 million (equivalent to sales of approximately HK\$40 million) a year from the eighth year as of the effective date  — 15% on the gross sales <i>(Notes 4 and 9)</i> generated worldwide except the PRC, U.S.A., the European Union, Japan, Australia and Hong Kong;  — 10% on the gross sales <i>(Notes 4 and 9)</i> generated in the PRC;  — 7.5% on the gross sales <i>(Notes 4 and 9)</i> generated in U.S.A., the European Union, Japan, Australia and Hong Kong;  — 25% of total sub-licence fee	the original license of foetal maternal non-invasive testing licensed to the Group for its research. However, the Group's foetal maternal tests to be launched to the market would be based on an improved license (being license number 9). Currently, the Group does not have any test or plan to launch any test based on this licence
3.	22 June, 2001 Exclusive licence	ISIS, a subsidiary of University of Oxford	Plasmagene	to use and to sub-license the non-invasive pre-natal diagnosis technology and other PDX Technology for production, sale, licensing and other commercial exploitation of any product and service based on such technologies and product commercialisation <i>(Note 1)</i>	Australia, Japan, Hong Kong and the PRC <i>(see note 2)</i>	7 years from 22 June, 2001 in Australia. 7 years from the date the patent is granted in Hong Kong and Japan. 10 years from 22 June, 2001 in the PRC <i>(see note 3)</i>	12% of net selling price in Hong Kong and Australia, 4% of net selling price in the PRC, 10% and 12% of net selling price in Japan before and after granting of Japan's patent respectively <i>(Note 10)</i> paid within 30 days from the last day of each year	the original license of foetal maternal non-invasive testing licensed to the Group for its research. However, the Group's foetal maternal tests to be launched to the market would be based on an improved license (being license numbered 9) except for the test for X-linked recessive diseases and Rhesus D factor



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Date of agreement	Type of licence	Licensor	Licensee	Scope of licence	Location	Effective period	Royalty payment <i>(Note 6)</i>	Remarks	
4.	21 May, 2002	Exclusive licence	the Chinese University	Plasmagene	to use the PDx Technology, including research finding relating to the detection of DNA present in blood plasma or serum by DNA methylation analysis and to sub-licence such technology <i>(Note 1)</i>	Anywhere in the world	20 years from 1 April, 2002 or upon expiry of the licensed patent, whichever is later	<p>HK\$35,000 upon granting each licensed patent anywhere in the world, provided the aggregate amount account to be paid will not exceed HK\$1,000,000 plus</p> <p>— 10% of the gross revenue <i>(Notes 4 and 9)</i> with amount of royalties of no less than HK\$3 million a year since 1 April, 2010</p> <p>— 25% on all sub-licence fees received <i>(Note 4)</i></p>	<p>pertains to a discovery by Professor Lo that will identify fetus by the methylation patterns of the genes and which may be useful in finding specific genes in any foetal diseases. It has just been granted USA approval for a patent</p>
5.	31 July, 2002	Exclusive licence	the Chinese University	Plasmagene	to use non-invasive clinical risk-stratification and monitoring techniques for assessing medical condition of stroke patients using the PDx Technology and to sub-licence such technology <i>(Note 1)</i>	Anywhere in the world	20 years from 1 April, 2002 or upon expiry of the licensed patent, whichever is later	<p>HK\$35,000 upon granting each licensed patent anywhere in the world, provided the aggregate amount to be paid will not exceed HK\$1,000,000 plus</p> <p>— 10% of the gross revenue <i>(Notes 4 and 5)</i></p> <p>— A minimum guaranteed royalty of no less than HK\$100,000 a year for four years from the fifth anniversary as of the effective marketing date (means the date the parties agree to launch the licensed product commercially any where in the world) and HK\$250,000 a year from ninth anniversary as of the effective marketing date provided that the total marketing expenditures of the Group in the first three years from the effective marketing date reach HK\$1.5 million</p> <p>— If the total marketing expenditures in the first three years from the effective marketing date cannot reach HK\$1.5 million, the Group agrees to pay the Chinese University a minimum guaranteed royalty of not less than HK\$3 million a year from the eighth anniversary as of the effective marketing date</p> <p>— 25% on all sub-licence fees received <i>(Note 4)</i></p>	<p>pertains to the use of beta globin for the prognostic value of stroke patients and it has no connection with any others except license number 7 below</p>

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Date of agreement	Type of licence	Licensor	Licensee	Scope of licence	Location	Effective period	Royalty payment <i>(Note 6)</i>	Remarks	
6.	31 July, 2002	Exclusive licence	the Chinese University	Plasmagene	to use methods for evaluating a disease condition by nucleic acid detection and fractionation and to sub-license such methods <i>(Note 1)</i>	Anywhere in the world	20 years from 1 May, 2002 or upon expiry of the licensed patent, whichever is later	<p>HK\$35,000 upon granting each licensed patent anywhere in the world, provided the aggregate amount to be paid will not exceed HK\$1,000,000 plus</p> <ul style="list-style-type: none"> <li>— 10% of the gross revenue <i>(Notes 4 and 5)</i></li> <li>— A minimum guaranteed royalty of no less than HK\$100,000 a year for four years from the fifth anniversary as of the effective marketing date (means the date the parties agree to launch the licensed product commercially any where in the world) and HK\$250,000 a year from ninth anniversary as of the effective marketing date provided that the total marketing expenditures of the Group in the first three years from the effective marketing date reach HK\$1.5 million</li> <li>— If the total marketing expenditures in the first three years from the effective marketing date cannot reach HK\$1.5 million, the Group agrees to pay the Chinese University a minimum guaranteed royalty of not less than HK\$3 million a year from the eighth anniversary as of the effective marketing date</li> <li>— 25% on all sub-licence fees received <i>(Note 4)</i></li> </ul>	<p>pertains to the use of a fractionation methodology in finding RNAs that are specific for different diseases. The examples given in the patent application is the use of a housekeeping gene RNA GAPDH for cancer diagnosis in liver and nasopharyngeal cancer patients. This is a stand alone patent and the Company is applying the methodology for the search for a general cancer diagnosis using GAPDH and possibly VEGF</p>

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Date of agreement	Type of licence	Licensor	Licensee	Scope of licence	Location	Effective period	Royalty payment <i>(Note 6)</i>	Remarks	
7.	15 August, 2002	Exclusive licence	the Chinese University	Plasmagene	to use quantitative analysis of pleural fluid cell-free DNA to diagnose the causes of pleural effusion and to sub-license such analysis <i>(Note 1)</i>	Anywhere in the world	20 years from 1 June, 2002 or upon expiry of the licensed patent, whichever is later	<p>HK\$35,000 upon granting each licensed patent anywhere in the world, provided the aggregate amount to be paid will not exceed HK\$1,000,000 plus</p> <p>— 10% of the gross revenue <i>(Notes 4 and 5)</i></p> <p>— A minimum guaranteed royalty of no less than HK\$100,000 a year for four years from the fifth anniversary as of the effective marketing date (means the date the parties agree to launch the licensed product commercially any where in the world) and HK\$250,000 a year from ninth anniversary as of the effective marketing date provided that the total marketing expenditures of the Group in the first three years from the effective marketing date reach HK\$1.5 million</p> <p>— If the total marketing expenditures in the first three years from the effective marketing date cannot reach HK\$1.5 million, the Group agrees to pay the Chinese University a minimum guaranteed royalty of not less than HK\$3 million a year from the eighth anniversary as of the effective marketing date</p> <p>— 25% on all sub-licence fees received <i>(Note 4)</i></p>	a similar patent with license number 5 above, using beta globin for pleural effusion diagnosis

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Date of agreement	Type of licence	Licensor	Licensee	Scope of licence	Location	Effective period	Royalty payment <i>(Note 6)</i>	Remarks	
8.	25 November, 2002	Exclusive licence	the Chinese University	Plasmagene	to use the gastric disease detection system for detecting EB virus DNA in stomach cancer, gastritis associated with EBV and EBV infections in other tissues leading to cancer and to sub-licence such system <i>(Note 1)</i>	Anywhere in the world	20 years from 25 November, 2002 or upon expiry of the licensed patent, whichever is later	HK\$35,000 upon granting each licensed patent in each agreed country provided the aggregate amount to be paid will not exceed HK\$1,000,000 plus 10% on gross sales <i>(Note 5)</i> generated worldwide and 25% of the total sub-licence fee <i>(Note 4)</i>	the second licence in time sequence that the Group worked with the Chinese University and Professor Lo. It was filed with Dr. Yeung's input from the Group and pertained to the use of EBV DNA in stomach cancer, gastritis as well as other diseases such as lung cancer, breast cancer and so on. The part pertaining to stomach cancer and gastritis and forms the exclusiveness of the Group's EBV DNA testing for such diseases worldwide
9.	1 March, 2003	Exclusive licence	the Chinese University	Plasmagene	to use the technology of circulating mRNA as diagnostic markers to detect pregnancy-related disorders and to sub-licence such analysis	Anywhere in the world	20 years from 1 March, 2003 or upon expiry of the licensed patent, whichever is later	<p>HK\$35,000 upon granting each licensed patent in each agreed country provided the aggregate amount to be paid will not exceed HK\$1,000,000 plus 10% on gross revenue generated worldwide and 25% of the total sub-licence fee <i>(Notes 4 and 5)</i></p> <p>— <i>A minimum guaranteed royalty of no less than HK\$100,000 a year for four years from the fifth anniversary as of the effective marketing date (means the date the parties agree to launch the licensed product commercially any where in the world) and HK\$250,000 a year from ninth anniversary as of the effective marketing date provided that the total marketing expenditures of the Group in the first three years for the effective marketing date reach HK\$1.5 million</i></p> <p>— <i>If the total marketing expenditures of the Group in the first three years from the effective marketing date cannot reach HK\$1.5 million, the Group agrees to pay the Chinese University a minimum guaranteed royalty of not less than HK\$3 million a year from the eighth anniversary as of the effective marketing date</i></p>	the main patent for the Group's foetal maternal products
10.	15 October, 2003	Non-exclusive licence	the Chinese University	Plasmagene	to use the technology for early diagnosis of SARS	Worldwide	10 years from 15 October, 2003	5% of net sales value <i>(Note 12)</i>	

*Notes:*

1. All of these licences relate to the use of the PDx Technology.
2. The related patent for Australia and Hong Kong were granted on 4 March, 1998 and 11 September, 2003 respectively. Application in respect of the related patents covering Japan has been filed on 6 September, 1999 and are pending as at the Latest Practicable Date.
3. The Group was also granted an option to renew this licence for a further period from the date the licence expires and continuing for so long as the commercial practice of the technology concerned is covered by a patent in the relevant jurisdictions, subject to the Group meeting a minimum cumulative aggregate royalty payment to ISIS of about HK\$7 million in 2008.
4. Royalty payment will be settled within 90 days from the last day of each quarter.
5. Gross revenue means the aggregate value of all the sales revenue of the related product without any deductions except open, fair discounts, refunds made to customers and rebates and all taxations payable in respect thereof (other than profits tax payable by the Group).
6. If a product uses the technologies from different licensing agreements, the Group needs to pay for the royalty payment under separate licensing agreements.
7. In general, the royalties for the licenses used in a product are added up. However, it is a term of the licenses from ISIS and the Chinese University that if one or more other licenses are used in addition to the ISIS license or a Chinese University license in a product, the royalties for those additional licenses can be used to deduct the ISIS or the Chinese University royalty payments but up to a certain maximum percentage.
8. Net revenue means the gross invoice price less deductions (where they are factually applicable and are not already reflected in the gross invoice price) including customary trade discounts, consumption and other taxes, and actual bad debts incurred which the Group can prove and document shall be considered by a deduction of no more than two percent of the gross invoice price.
9. Gross sales means for any period the aggregate value of all the sales revenue without any deductions, including without limitation, any deductions for returns, allowances appearing on the invoice, packing, insurance, freight, duties or taxes.
10. Net selling price means the gross selling price after deducting discounts, carriage and packaging, and sales, excise or other taxes (excluding income taxes).
11. Gross sales means for any period the aggregate value of all the sales revenue without any deductions except open, fair discounts, refunds made to customers and rebates and all taxation payable in respect thereof (other than profits tax payable).
12. Net sales means the invoiced price sold in arm's length transactions, or, where the sale is not at arm's length, the price that would have been so invoiced if it had been at arm's length, less normal trade discounts actually granted, any costs of packaging, insurance, freight, or any relevant tax, duties or similar government levies.

Please refer to the sub-section headed "Intellectual property" in Appendix V to this prospectus for further details.

## BUSINESS

The following is a summary of the tests launched or planned to be launched by the Group (all of which are based on the PDx Technology), their applicable licences (using the same sequence number as the table of licenses above) and royalties payable. Deductions of royalty payments described below are based on the terms of the relevant licence agreements such that deductions can be made to the royalty payable if the Group is obliged to pay royalties to third parties for the sales made. Maximum deductions for the relevant licence agreements are also stated:

Name of the tests	Description	Applicable licence	% royalty on gross revenue
<i>EBgene, EBeasy and EBcombo</i>	Nasopharyngeal cancer	Licence 1	9% ( <i>Note</i> )
<i>Real HPL, Real CRH and Real hCG</i>	Foetal maternal tests for re-eclampsia, possible trisomy 18 and investigating the use on Down's syndrome	i) Licence 1 ii) License 9	i) 9% ( <i>Note</i> ) ii) 6% (10% but with deduction of third party royalty payments up to 4%) iii) total 15% (i + ii)
<i>SARS test</i>	Test for SARS	i) Licence 1 ii) Licence 10	i) 9% ( <i>Note</i> ) ii) 5% iii) total 14% (i + ii)
<i>Inkgene 16</i>	Test for liver cancer	Licence 1	9% ( <i>Note</i> )
<i>GAPDH test</i>	Screening test for cancer	i) Licence 1 ii) Licence 6	i) 9% ( <i>Note</i> ) ii) 6% (10% but with deduction of third party royalty payments up to 4%) iii) Total 15% (i + ii)
<i>GSTP1 test</i>	Test for prostate cancer	Licence 1	9% ( <i>Note</i> )
<i>EBgastric</i>	Test for stomach cancer	i) Licence 1 ii) Licence 8	i) 9% ( <i>Note</i> ) ii) 6% (10% but with deduction of third party royalty payments up to 4%) iii) Total 15% (i + ii)
<i>XY gene</i>	Foetal sex test for X-linked recessive diseases such as haemophilia	i) Licence 1 ii) Licence 3	i) 9% ( <i>Note</i> ) ii) 9% (12% but with deduction of third party royalty payments up to 3%) iii) Total 18% (i + ii)

## BUSINESS

Name of the tests	Description	Applicable licence	% royalty on gross revenue
<i>Rhgene</i>	Foetal test for Rhesus D factor	i) Licence 1 ii) Licence 3	i) 9% ( <i>Note</i> ) ii) 9% (12% but with deduction of third party royalty payments up to 3%) iii) Total 18% (i + ii)
<i>Cgene</i>	Test for organ transplant failure, trauma and stroke	i) Licence 1 ii) Licence 5	i) 9% ( <i>Note</i> ) ii) 6% (10% but with deduction of third party royalty payments up to 4%) iii) Total 15% (i + ii)
<i>PEgene</i>	Test for pleural effusion	i) Licence 1 ii) Licence 7	i) 9% ( <i>Note</i> ) ii) 6% (10% but with deduction of third party royalty payments up to 4%) iii) Total 15% (i + ii)

*Note:* As the life of the patent will expire in 2006, the technology will be opened to the public and the patent cannot be renewed. From then onwards, no royalty would be payable.

### COMPETITION AND COMPETITIVE ADVANTAGES

The Group's competition environment in the IVD (in vitro diagnostic) market is strongly dependent on the success of the Group to demonstrate that its products are superior in performance as a diagnostic tool and that they are non-invasive to the patients by causing less pain and discomfort as well as being safe (to the foetus in the case of the foetal maternal products).

In the cancer diagnostic market, the present competition in the EBV marker of nasopharyngeal cancer is from the old anti-body tests. These anti-body tests are based on the body response to the EBV infections and consist of the measurements of the immunoglobulins A and G (human antibodies produced when there is an infection) levels towards some of the viral antigens present. They can detect a relatively small percentage of the early nasopharyngeal cancer cases. They are not quantitative and bear no indications as to the prognosis or progress of the disease. The anti-body tests can be manufactured in-house by individual laboratories using EBV cell lines or can be purchased from a number of companies in Taiwan. The price per test offered to the public is comparable to that of the Group's lower priced screening product *EBeasy*. The Group uses the PDx Technology or real time quantitative PCR methodology for the detection of EB virus associated cancerous diseases. For a similar PCR technology, there are a number of companies that offer EB virus DNA detection based on

PCR as a research tool and for the identification of the virus itself. These companies cannot be classified as competitors since their products are marked as reagents and as such are not recommended for clinical use. The price per test for these non clinical use EBV DNA reagents is slightly more expensive than the *EBeasy* test and is comparable to that of the more expensive quantitative *EBgene* test. The Directors consider that the Group's position in the testing of EBV associated cancer such as nasopharyngeal carcinoma, benchmarking against other competitors, should be measured by the uniqueness of the test's ability to actually measure the genome quantity of the EB virus in each cancer cell, practical usefulness and pricing. In addition, because of the pending proprietary position that the Group has in stomach and non head and neck cancer, the Directors believe that the Group should be in a good position to capture these future markets when they mature.

In the foetal maternal market, the competition for non invasive blood testing comes from companies making non-proprietary tests such as human chorionic gonadotropin, estriol, alpha fetoprotein and a few others. These tests are relatively inexpensive but they have to be done by bundling them together in sets of two, three or sometimes four. The price to the consumer is about HK\$650 per set. In addition, ultrasound of the foetal neck thickness has to be performed by doctors themselves in the late first and early second trimester to reinforce the blood test results. This would add approximately an additional HK\$500 to HK\$1,000 to the above. If the risk is judged high enough, such as those women age over 35, an invasive amniocentesis which can extract direct foetal tissue for examination is done at a cost of about HK\$2,400 to HK\$4,000. There are a number of companies that make testing products for the different foetal abnormalities in the amniocentesis fluid. The Directors consider that the Group's position in the testing of foetal maternal diseases, benchmarking against other competitors, will be governed by the accuracy of the tests offered, and the price advantage (the Group's product as a non-invasive blood test will cost less than both the combination non-invasive tests existing nowadays and the invasive amniocentesis). The Directors believe that the Group's test, with its feature of actually determining the foetal placental hormonal RNA, is in a unique position to offer the testing of actual foetal genetic materials derived by a non-invasive method.

The Directors consider that there are considerable barriers to entry in the field of diagnosis of serious illnesses at the early stage using non-invasive techniques. Being an early mover in this field and having established strong ties and a long history of cooperation with local universities, hospitals and healthcare institutions, coupled with market recognition of its testing services, the Directors believe that the Group is well positioned to maintain its competitive edge over other medical testing services providers.

Particularly, the Directors consider that competition in prenatal diagnosis is low given the already advanced stage the Group's research work has reached and the licences the Group has obtained which are in most cases exclusive. As far as the Directors are aware, there is no competitive patent relating to the detection of genetic markers in plasma or serum from a maternal blood sample for the diagnosis of prenatal diseases although the Directors are aware that other researchers have been using different methods for detecting prenatal diseases. The non-invasive feature of the Group's testing services is also expected to strengthen the competitive advantages of the Group.



The Directors believe that the Group's competitive advantages lie in the following areas:

- the Group is the one of the entities in the world to provide diagnostic tests of cancerous diseases developed from the PDx Technology. The Group has already launched testing services, namely *EBgene*, *EBeasy* and *EBcombo* between November 2001 and August 2002;
- a good reputation and market acceptance in respect of the Group's testing services which are proven to be non-invasive, safe, sensitive and less expensive than alternative testing services available in the market;
- the Group has in the pipeline a range of testing services that are in various stages of development and which are expected to be launched to the market in the coming two years following the Listing. Further, the Group's testing services are catered for a large population worldwide;
- the ability to generate steadily growing revenue for the Group shortly after the launch of future testing services as evidenced by the Group's testing services, namely, *EBgene*, *EBeasy* and *EBcombo* that were recently introduced to the market in November 2001, January 2002 and August 2002 respectively and which generated total sales of approximately HK\$525,545, HK\$1,339,250 and HK\$904,550 over a period of eight months up to 30 June, 2002, for the year ended 30 June, 2003 and the six months ended 31 December, 2003, respectively. This is expected to lay a solid business foundation for future development of the Group;
- the anticipated gradual increased recognition of the Group's future testing services by the medical community and patients is expected to reduce significantly the Group's future requirements for sales and marketing support;
- the Group's history of co-operation with a local university and a healthcare organisation enables the Group to enhance its research capabilities and expedite the research and development process of future testing services. In particular, the licensing arrangement between the Group, ISIS and the Chinese University has helped to expedite the development of future testing services and to reduce the Group's expenditure in research and development; and
- a strong management team, including Dr. Yeung who has been engaged in cancer diagnostic and treatment research for over 30 years.

## **SALES AND MARKETING**

The Directors believe that broad market acceptance of the Group's testing services will be achieved by educating consumers and the medical community about the benefits of the Group's testing services. The Group has focused its marketing strategy on the concept of providing safe, non-invasive and relatively inexpensive tests. In Hong Kong, the Directors believe that limited marketing efforts are required as a result of research programmes entered into between the Group and local universities, doctors and healthcare organizations which have become familiar with the Group's testing services.

The Group's sales team keeps in direct contact with doctors and laboratories in Hong Kong to market the Group's testing services. Currently, brochures introducing the Group's testing services are distributed to users of a health-screening programme of an insurance company in Hong Kong and the Group also provides *EBeasy* testing services with another independent insurance provider in Hong Kong to use the Group's testing services for detecting cancer. In the near term, the Group plans to promote its testing services to the medical community, particularly in the obstetrics and oncology markets in Hong Kong, China, Japan and Australia. Please refer to subsection headed "Regulatory requirements" under the section of "Industry overview" of this prospectus for details on regulatory compliance issues. It is expected that with the good market reception of the Group's existing testing services and as recognition of the Group's future testing services by the medical community increases, the Group's requirements for sales and marketing support will reduce. As at the Latest Practicable Date, the Group had a total of three sales and marketing personnel in Hong Kong.

Sales are settled in Hong Kong dollars on credit terms of 30 days by cheques or telegraphic transfer. The Group makes provisions for its accounts receivable to the extent the receivable is considered to be doubtful, taking into account the payment history of the particular customer and the Group's business relationship with it. The credit limit for each customer is normally set with reference to the average monthly sales to this customer. The Directors evaluate the creditability of new customers on a case-by-case basis and assign a credit limit that ranges from HK\$5,000 to HK\$50,000, other than Town Health group whose credit limit is HK\$300,000. As part of the Group's stringent credit control, outstanding accounts receivable of the Group are closely monitored by way of correspondences and oral communications by the Group's financial controller and, in respect of long overdue amounts receivable, by the Board on a monthly basis. For the year ended 30 June, 2002, no specific provision for doubtful debts was recorded.

The Group's sales channel via the Internet has recently started. It is primarily targeting customers from other countries and because of this, only the kit form of the Group's tests is provided.

### **Marketing strategies for launching the Group's testing services and products to the market**

The Directors believe that an effective marketing and distribution network is essential to the successful commercialisation of the Group's testing services and products in the targeted markets. The

Group's general launching and marketing strategies are applicable to all tests based on the PDX Technology platform as in vitro diagnostic (IVD) device with a real time PCR sequence detection system and are as follows:

1. For Hong Kong, the PRC and other countries in Asia where approval from the Food and Drug Administration of the United States (the "FDA") is not considered necessary for the launching of the test, the Group will be meticulous to finding a right business partner or agent to handle the marketing work. The Directors expect that sales can be achieved by the partner or agent or through the Internet, or through a local agent procured by the Group. The Group will prefer a reputable partner with a past record of sales and marketing in medical products, and make arrangement for investment in marketing the test to the targeted groups as specified under each disease category. The Group has so far identified a few potential partners and is now in the process of negotiating the terms of engagement. The likely channels are educational seminars and joint effort marketing with hospitals that already have or wish to purchase a real time PCR machine (a necessity to perform the tests themselves). Individual doctors' mailings or calling by sales team are also important since doctors in these countries may not use FDA approval as the standard of care. Soft, toned-down and ethical newspaper, television or magazine advertisement to the right patient group for these tests are applicable to a larger target population. Ultimately, easy ordering and delivery of test kits will be available to those doctors and hospitals requiring these tests for their patients.
2. For other countries where the FDA approval is important, the Group's sales and marketing work will only commence after the availability of the FDA approval for the tests. The Directors believe that marketing to these countries will be relatively easier since most doctors will use the FDA approval as the standard of care. The Group considers that the placement of advertisements in specialty journals and magazines may be sufficient for marketing purposes. In addition, a local agent and easy access to the ordering and delivery of the test kits will also be set up.

## **INSURANCE**

The Group's laboratory equipment is insured against loss of income from natural disaster or damages due to fire and theft. Employees of the Group working at its laboratory are also insured for the general medical expenses. The Group is also covered by a professional indemnity insurance against liability arising from the Group's testing services and other losses that may arise therefrom. The Group has not experienced any claim in relation to its testing services throughout the Track Record Period. The Group's tests are tools used for the diagnosis of diseases but are not the only means of diagnosis. The diagnosis and the method of treatment are ultimately determined by doctors who would use a combination of diagnostic methods (such as CT scan and MRI). Any liability would be shared by the doctors who made the actual diagnosis. Moreover, the Group's tests involve the testing of blood samples that are not expected to have any direct effect on the patients. On this basis, the Directors consider that the insurance coverage of the Group is adequate.

## **CONNECTED TRANSACTIONS**

The Group has from time to time conducted business with connected persons as described below. These transactions have been carried out in the ordinary course of business, on an arm's length basis and on normal commercial terms.

- A. The following connected transaction occurred during the Track Record Period and is not expected to continue following the Listing.

### **Reimbursement of directors' fee**

Prior to the Reorganisation, Plasmagene and 3 Ben were subsidiaries of Century Year Company Limited, which is wholly and beneficially owned by Dr. Yeung and Ms. Margaret Tsui. During this period, the salary of Dr. Yeung as a director of Plasmagene, 3 Ben and Century Year were initially recorded in the books of Century Year Company Limited, and part of which was subsequently charged to Plasmagene and 3 Ben by way of monthly management fees paid by Plasmagene and 3 Ben to Century Year Company Limited pursuant to an agreement dated 15 July, 2002 (as supplemented by an agreement dated 6 September, 2002) entered into between these companies. Under these agreements, Plasmagene and 3 Ben agreed to pay Century Year Company Limited a monthly management fee of HK\$47,500 and HK\$15,000, respectively, being the respective directors' fee that would have been paid to Dr. Yeung as a director of Plasmagene and 3 Ben. The agreements were for a period from August 2001 to August 2004. Plasmagene, 3 Ben and Century Year Company Limited agreed to terminate the above arrangements on 1 October, 2002. No consultancy fees were paid after September 2002 and salaries and quarters provided to Dr. Yeung are directly charged to the Group. On 20 June, 2003, such consultancy agreements between Century Year Company Limited and each of Plasmagene and 3 Ben were terminated by their mutual agreement.

### **Purchase of equipments**

On 25 June, 2003, Plasmagene acquired a car and several pieces of furniture from Century Year Company Limited at net book value of HK\$279,191 recorded in the books of Century Year Company Limited.

Both the reimbursement of directors' fee and purchase of equipments are connected transactions for the Company as Century Year Company Limited is an associate of Dr. Yeung, a Director.

### **Assignment of intellectual property rights**

On 6 September, 2002, 24 September, 2003, 17 February, 2004 and 8 April, 2004, Dr. Yeung assigned to 3 Ben and Plasmagene all intellectual property rights relating to the use of FDG for treating cancer patients, the use of technology related to SARS and the use of technology of a combination test for EBV DNA. Consideration for each assignment is HK\$1.00. The assignments are perpetual. Apart from the payment of HK\$4.00 for the assignments, the Group had not paid

any fees to Dr. Yeung in respect of such patents during the Track Record Period. Under the GEM Listing Rules, Dr. Yeung is a person falling with the definition of a “connected person” after the Listing for so long as Dr. Yeung remains a substantial or management shareholder of the Company or a director of any member of the Group.

**Deed of novation in respect of a charge over the entire issued share capital of Plasmagene**

On 24 June, 2003, a deed of novation was entered into between New Oxford Management Limited (a company wholly owned by Century Year Company Limited which in turn is beneficially owned by Dr. Yeung and Ms. Margaret Tsui) and Chemosino International Limited (the “Deed of Novation”) in respect of the novation of a deed of charge dated 4 February, 2003 entered into between New Oxford Management Limited and the Noteholders (the “Deed of Charge”) in relation to the grant of a first legal mortgage over the entire issued share capital of Plasmagene in favour of the Noteholders as a continuing security for payment of all sums due to the Noteholders under the Convertible Notes. Under the Deed of Novation, Chemosino International Limited shall assume the obligations, undertakings and guarantees of New Oxford Management Limited under the Deed of Charge.

**Novation agreement in respect of the tenancy of the place of residence of Dr. Yeung**

On 25 March, 2003, a novation agreement was entered into between Century Year Company Limited, an associate of Dr. Yeung, the Company and the landlord who is an independent third party (the “Novation Agreement”) in respect of the novation to the Company of a tenancy agreement dated 6 November, 2002 (the “Tenancy Agreement”) relating to the premises at Duplex Flat B, 1st Floor and Car Parking Space No. 8 on the 3rd Lower Ground Floor, No. 1 Garden Terrace and 8 Old Peak Road, Mid-Levels, Hong Kong, being the place of residence of Dr. Yeung. Under the Novation Agreement, the Company shall assume the obligations of Century Year Company Limited under the Tenancy Agreement.

- B. Following the Listing, the Group will continue to conduct connected transactions as described below.

The following connected transactions are exempted under Rule 20.34 of the GEM Listing Rules from the independent Shareholders’ approval requirements.

**Sub-leasing of office**

A sub-tenancy agreement was entered by the Company on 29 August, 2003. The Group has agreed to sub-lease part of its office to Wellchamp Capital Limited for a period of one year commencing on 26 May, 2003 for a monthly rental of HK\$25,000. Wellchamp is now sharing the property with Plasmagene upon same terms and conditions as contained in the sub-lease agreement notwithstanding that the term has already expired. An amount of HK\$33,402 and HK\$162,355 has been paid by Wellchamp Capital Limited to the Company as net rental and utility charges during the year ended 30 June, 2003 and the six months ended 31 December, 2003 respectively. The sub-leasing is a connected transaction as Wellchamp Capital Limited, being a

company owned as to 97.6% by Mr. Cheng Yan Tak, Angus Ronald, a Director and an Initial Management Shareholder would constitute an associate of such Director under the GEM Listing Rules. The Company will comply with the reporting and announcement requirements under Chapter 20 of the GEM Listing Rules in respect of such transactions following the Listing.

- C. The following continuing connected transactions are subject to approval by the independent shareholders of the Company in general meetings as required under Rule 20.18 of the GEM Listing Rules.

#### **Community research programme jointly conducted with Spring Biotech**

An agreement dated 23 April, 2002 and a supplemental agreement dated 7 August, 2002 were entered into between Plasmagene and Spring Biotech under which Plasmagene agreed to offer the Group's testing services to Town Health's patients. The test results will be followed up by the doctors at Town Health's medical centre and will also be used in a community research programme jointly run by Plasmagene and the Town Health group. The programme consists of seminars and the offering of the Group's cancer tests based on the PDx Technology. The cancer tests which were marketed as *EBeasy* and *EBgene* were offered free of charge to the public during the launch of the programme.

Plasmagene charges Spring Biotech a fee based on a fixed scale depending on the type of testing services offered to patients at Town Health's medical centre. Such fee rates are the same as those charged for third party customers. Under the supplemental agreement dated 7 August, 2002, Spring Biotech agreed to use its reasonable endeavour to procure that the Group's total gross revenue from offering its testing services at Town Health's medical centre will not be less than HK\$3 million up to 30 June, 2004. The agreement is for a period of twenty-six months commencing from 1 May, 2002 until 30 June, 2004. For the two years ended 30 June, 2003 and the six months ended 31 December, 2003, the Group received fees from Spring Biotech of HK\$162,660, HK\$483,380 and HK\$496,380 respectively. The relevant agreements do not stipulate any penalty to be made by Spring Biotech in the event the gross revenue is less than HK\$3 million up to 30 June, 2004. As stated in the relevant agreement, Spring Biotech agreed to use its reasonable endeavour to procure that the revenue will not be less than HK\$3 million. If Spring Biotech has not used its reasonable endeavour to achieve the target of HK\$3 million during the two year ending 30 June, 2004, the Group may consider not renewing the agreement with Spring Biotech at the end of 30 June, 2004. However, it is the intention of the Group and Spring Biotech to renew the existing agreement prior to its expiration for twelve months until 30 June, 2005 upon similar terms. Under the GEM Listing Rules, Spring Biotech is an Initial Management Shareholder and substantial shareholder of the Company, and is a person falling within the definition of a "connected person" after the listing of the Shares for so long as Spring Biotech and/or Town Health remains as a substantial or management shareholder of the Company.

The connected transactions as described above between Plasmagene and Spring Biotech after the Listing Date will normally require full disclosure and independent Shareholders' approval on each occasion they arise unless they fall within any of the exceptions set out in the GEM Listing Rules. As the Group expects that these connected transactions will continue in the foreseeable future on normal commercial terms, and occur on a regular basis after the Shares are listed on GEM, the Directors consider that it would not be practical to make disclosure and obtain independent Shareholders' approval for these transactions each time they occur after the Listing Date. The Directors expect that the annual total income received from Spring Biotech may exceed the de minimus transactions threshold as set out in Rule 20.33(3) of the GEM Listing Rules for the year ending 30 June, 2004. Accordingly, the Company has applied to the Stock Exchange for a waiver from the requirements under Rules 20.47 and 20.48 of the GEM Listing Rules. Details of the waivers granted by the Stock Exchange are set out in the paragraph headed "Connected transactions" of the section headed "Waivers from compliance with the GEM Listing Rules" in this prospectus.

In the opinion of the Directors (including the independent non-executive Directors) and the Sponsor, the connected transactions as described above between Plasmagene and Spring Biotech fall within the ordinary course of business of the Group on normal commercial terms and are fair and reasonable so far as the interests of independent Shareholders are concerned. The Directors (including the independent non-executive Directors) and the Sponsor are also of the opinion that the cap estimation (as detailed in the sub-section headed "Cap estimation" under the section headed "Waiver from strict compliance with the GEM Listing Rules") is fair and reasonable.