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**SINGAPORE'S FIRST COMMERCIAL DEVELOPER OF MOLECULAR  
DIAGNOSTIC ASSAYS COMMENCES OPERATIONS**

*8 September 2008, Singapore* – Singapore's first commercial developer of molecular diagnostic assays, Dx Assays Pte Ltd, announced that it has officially started its operations. The company was established end 2007, as a joint venture between QIAGEN, Europe's biggest biotech company and Bio\*One Capital, the dedicated biomedical science investment company of EDB Investments. Dx Assays was formally launched today at an opening ceremony attended by some 50 guests. The guest-of-honour at the opening ceremony was Dr Beh Swan-Gin, Managing Director of EDB Singapore. Other guests included Ms Chu Swee-Yeok, EDB Investments Chief Executive Officer, Mr Peer Schatz, QIAGEN Chief Executive Officer, and members of the company's Board of Directors.

Dx Assays will develop and validate molecular diagnostic assays for biotech and pharmaceutical companies, which can be used throughout all stages of drug discovery and drug development. The use of validated assays will help Dx Assays' clients identify promising drug candidates in a more cost-effective and efficient manner. (See Annex 1 for background information on molecular diagnostics and its role in drug development)

The company also supports the industry's clinical development activities by designing and developing companion diagnostics that help prove the efficacy of drug candidates for specific patient populations. This is a key foundation in the concept of "personalized medicine", which has the potential in the near future to replace the conventional "one size fits all" approach in medical treatment. Such molecular diagnostic assays take into account the genetic predisposition of the patient and the exact characterization of the disease. This tailored approach requires the use of molecular diagnostic assays. In this manner, molecular diagnostics will play a key role in boosting the effectiveness of medical therapies and drastically reducing adverse drug reactions. (See Annex 2 for background information on personalized medicine)

“The opening of Dx Assays' R&D laboratory will help Singapore participate in the strong growth opportunities in molecular diagnostics. The company will be able to leverage on the expanding base of research work in A\*STAR and the medical schools to discover and develop validated assays and potentially, companion diagnostics. This in turn will make Dx Assays an attractive partner for drug discovery companies in Singapore and in the region to develop better drugs in a more efficient and effective manner,” said Dr Beh Swan Gin, Managing Director of EDB. “We strongly welcome Dx Assays as the latest member of the biomedical research community in Singapore.”

“The emergence of molecular diagnostics is one of the most important developments in the field over the past 25 years and we are seeing a fundamental shift towards more personalized, early disease detection and intervention.” said Ms Chu Swee-Yeok, CEO of EDB Investments and concurrently Bio\*One Capital.” “We are pleased to be able to partner with QIAGEN in this venture to explore growing opportunities of this rapidly advancing field and develop tests that can be used to enhance companies' drug development activities and treatment of patients.”

“By leveraging the development capabilities of Dx Assays, QIAGEN can further strengthen its presence in the rapidly growing Asian market and expand its global portfolio of molecular testing solutions. We can significantly accelerate our development speed and hope to launch first products from this Singapore centre within the next one to two years.” said Mr Peer Schatz, CEO of QIAGEN. Asia today is QIAGEN's fastest growing market and the company currently maintains seven offices in the region with over 370 employees.

Dx Assays will be working on the development and validation of molecular diagnostic assays for infectious diseases and oncology. Initial assay projects are expected to be completed by end 2008.

“We want to be one of the premier suppliers of molecular diagnostic assay development solutions”, said Dr Michael Paumen, CEO of Dx Assays. “We are grateful to QIAGEN, the world's leading provider for sample and assay technologies, who have provided us with expert know-how and intensive staff training. It is through such support from our strategic partners that we will be able to seamlessly serve all major pharmaceutical and

biotech companies. Our location here in Singapore is ideal for this, as we can leverage upon the strong scientific community here, to gain access to qualified manpower, R&D partners and potential clients.”

Dr Paumen is leading Dx Assay’s current team of 16 staff, located in its 11,000sqft state-of-the-art facility which also houses the latest equipment and technologies. When fully staffed in 2010, the company expects to employ up to 36 R&D and operations personnel. Dx Assays will adhere to applicable quality assurance standards, such as Good Laboratory Practice and ISO 13485, ensuring that its molecular diagnostic kits will meet worldwide industry regulatory standards. The company is expected to provide a boost to Singapore’s rapidly developing biomedical sciences sector.

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Annex 1 – Background information on molecular diagnostics  
Annex 2 – Background information on personalized medicine  
Annex 3 - Biodata - Dr Beh Swan Gin, Ms Chu Swee-Yeok, Mr Peer Schatz and Dr Michael Paumen

### **About QIAGEN**

QIAGEN N.V., a Netherlands holding company, is the leading provider of innovative sample and assay technologies and products. QIAGEN's products are considered standards in areas such pre-analytical sample preparation and assay solutions in research for life sciences, applied testing and molecular diagnostics. QIAGEN has developed a comprehensive portfolio of more than 500 proprietary, consumable products and automated solutions for sample collection, nucleic acid and protein handling, separation, and purification and open and target specific assays. The company's products are sold to academic research markets, to leading pharmaceutical and biotechnology companies, to applied testing customers (such as in forensics, veterinary, biodefense and industrial applications) as well as to molecular diagnostics laboratories. QIAGEN employs more than 2,800 people in more than 30 locations worldwide. QIAGEN products are sold through a dedicated sales force and a global network of distributors in more than 40 countries. [www.qiagen.com](http://www.qiagen.com)

### **About Bio\*One Capital**

Bio\*One Capital is a leading, dedicated biomedical sciences investment management company in Asia with a worldwide presence. Bio\*One Capital's investments are focused on promising global biomedical companies where Bio\*One Capital can play a value adding role in bridging and supporting companies' growth strategies in Asia through their operations in Singapore. Bio\*One Capital offers a strong combination of financial, business, scientific and investment know-how to enhance the value of companies from intellectual property generating research, to clinical and product development, manufacturing and commercial activities. Through its extensive networks with global pharmaceutical, biotechnology, medical technology companies and venture capital corporations, Bio\*One Capital proactively facilitates partnering and collaborative opportunities to help its portfolio companies grow into sustainable and successful ventures. [www.bio1capital.com](http://www.bio1capital.com)

## **Annex 1 – About Molecular Diagnostics**

Molecular diagnostics refers to the use of nucleic acids (DNA or RNA) to test for genes or gene products in patient care. This area has shown rapid development in the last decade and molecular diagnostic tools can be used to test patient samples for a wide range of diseases or disease predispositions. This will lead to tailor-made medical treatments, which are customised according to patients' genetic make and exact characterization of the disease. In this manner, molecular diagnostics will play a key role in boosting the effectiveness of medical therapies and drastically reducing adverse drug reactions. This will lead to a modern healthcare system which is both more affordable and efficient.

The field of molecular diagnostic is rapidly growing, especially in the U.S. and European biotech hubs. It plays an important role on detecting and treating diseases. In 2007, the molecular diagnostics market was estimated \$2.6 billion and is projected to grow by 17% annually until 2010.

The market can be divided into the following segments:

- Infectious Disease
- Blood Screening
- Oncology
- Genetic Testing
- Companion Diagnostics
- Applied Testing

Molecular Diagnostics has paved the way to more efficient drug development. For example, the Human Papilloma Virus (HPV) is a major cause of cervical cancer in women. Subtypes HPV16 and HPV18 account for about 70% of all cervical cancer cases. During the development of a vaccine against HPV known as Gardasil, Merck & Co. used molecular diagnostics to identify and classify the strains of HPV in the women who participated in the drug's clinical trials. This allowed the study to more clearly show the efficacy of Gardasil against the relevant strains of HPV that are known to cause cervical cancer and the results formed an integral part of the company's regulatory submission to the FDA.

## Annex 2 – About Personalised Medicine

Patients frequently respond differently to the same drug, so that while one treatment may work well with one patient, it may have no effect or even a negative effect on another. The main reason for this is due to the diversity of humans' genetic make-up, and therefore, understanding the differences in the human genome can help doctors tailor treatments for their patients, to achieve the best results possible. Pharmacogenomics studies how a person's genetic make-up affects his/ her response to drugs, and enables the development of new therapeutics or customized treatments.

DNA tests can help predict whether patients are likely to suffer a particular illness and allow for the better detection and identification of diseases. Scientists can use molecular diagnostics to test patients' DNA and choose the most effective treatment for that patient, rather than adopting a "trial and error" approach. Personalised medicine benefits the patient through better and safer treatments and benefits society through reduced healthcare costs.

Personalised medicine is already being used today. Some examples include:

- Cancer – Doctors are able to detect particular mutations in the patients' genome and use this to plan the most effective treatment. For example, Irinotecan is a chemotherapy agent, used mainly in colon cancer. Irinotecan is inactivated by an enzyme found in the human body. However, certain patients with a genetic variation express less of this enzyme and during chemotherapy receive a higher dose than expected, as they cannot clear the drug as effectively. As a result, they may suffer from severe diarrhea and suppression of the immune system. Physicians can now genetically test their patients, in order to plan the appropriate dose level.
- Warfarin is a blood thinner that is used for preventing blood clots, and is typically prescribed to patients with an increased tendency for thrombosis, or to prevent further episodes of an embolism (migration of a blood clot in a vessel, where it blocks blood supply to an organ). Patients with specific genetic variants may require lower dosing of the drug, as they may be more sensitive to the drug, or the drug may remain active in their blood for a longer period of time. Warfarin is taken by an estimate 2 million people in the U.S. and is the second most likely drug (after insulin) to send people to the emergency room, with drug related side effects. Previously, physicians relied only on factors such as age, body weight/ size, gender and environmental factors to estimate the starting dose of warfarin. Physicians can now opt to genetically test their patient for a certain genotype and if so, lower the initial dose. In August 2008, the National University Hospital (NUH) announced that its researchers have developed a formula to calculate precisely how much warfarin is needed, based on the patients' genetic make-up. This will help to prevent strokes and heart attacks, without the side effect of bleeding which accompanies excessive doses. The research team is testing the algorithm on 100 patients in a drug trial and expects to complete this in 2009. In a previous study, the NUH team found that Indians typically require higher dosages of warfarin than Chinese and Malays.

### **Annex 3 – Biodata of key personnel**

**Dr Beh Swan Gin** - Dr Beh, an Administrative Service officer, was appointed as Managing Director of the Singapore Economic Development Board from 1 August 2008. He joined EDB in November 1992 and has held various portfolios within EDB, ranging from industry development to planning & policy, and from corporate development to global operations. These included leadership roles in the development of Singapore's Biomedical Sciences industry cluster from 2001 to 2006, as well as overseas assignments in EDB's North American operations from 1995 to 2000. Between October 2006 and January 2007, Dr Beh was concurrently Executive Director of the Biomedical Research Council at the Agency for Science, Technology & Research. In addition, he was concurrently Director of the Ministry of Trade & Industry's Energy Planning Division between June and December 2006. Dr Beh is a medical doctor by training and graduated from the National University of Singapore. He is also a Sloan Fellow with a Master of Science in Management from Stanford University's Graduate School of Business. He is on the Board of Directors for Singapore Health Services, International Enterprise Singapore, Bio\*One Capital and EDB Investments.

**Ms Chu Swee-Yeok** - Ms Chu oversees the investment and operations of EDB Investments Pte Ltd (EDBI) as its Chief Executive Officer, concurrent to her role as Chief Executive Officer of Bio\*One Capital Pte Ltd. She has over two decades of track record with experiences in equity investments, technology promotion as well as strategy and business development. EDBI is the investment arm of Singapore EDB which supports the growth of vibrant and strategic key industry clusters in Singapore. EDBI's dedicated biomedical sciences investment entity, Bio\*One, invests in high growth companies globally. It manages three investment funds and has a portfolio of more than 50 companies. Ms Chu holds several board responsibilities in companies including SBIO Pte Ltd, Merlion Pharmaceuticals, ABIO Pharmaceuticals, CombinatoRx Singapore, Lonza Biologics Tuas, and Novartis institute for Tropical Diseases.

**Mr Peer Schatz** - Peer M. Schatz Managing Director, Chief Executive Officer, joined the Company in 1993 and has been Chief Executive Officer since January 1, 2004. Between 1993 and 2003 he was Chief Financial Officer and became a Managing Director in 1998. Mr. Schatz was previously a partner in a private management buyout group in Switzerland and worked in finance and systems positions in Sandoz, Ltd. and Computerland AG, as well as in finance, operations, management and sales positions in various start-up companies in the computer and software trading industry in Europe and the United States. Mr. Schatz graduated from the University of St. Gall, Switzerland, with a Master's degree in Finance in 1989 and obtained an M.B.A. in Finance from the University of Chicago Graduate School of Business in 1991. Mr. Schatz also serves in the capacities of Supervisory Director, Vice Chairman and Audit Committee Chairman of Evotec AG and also serves as a member of the German Corporate Governance Commission.

**Dr Michael Paumen** - Dr. Michael Paumen, CEO of Dx assays, joining the company in January 2008. During the first 6 months, he led the start-up activities including the hiring of staff and creating the laboratory infrastructure. Prior to this, he was the Technical Director at Affymetrix, and spent 5 years with the company developing their Sales & Marketing offices in Japan. He has also held various positions at QIAGEN, including Scientific Affairs Manager, overseeing worldwide scientific collaborative studies across academia and industry. Dr Paumen also was involved in setting up QIAGEN's first offices in Asia in 1997. He obtained his Ph.D. from Johannes-Gutenberg University, in Germany. His scientific activities included work at German Cancer Research Center and Kyoto University.