The heart of the matter.

The NEBNext® Ultra™ II workflow lies at the heart of NEB’s portfolio for next gen sequencing library preparation. With specially formulated master mixes and simplified workflows, high quality libraries can be generated with low inputs and reduced hands-on time.

As sequencing technologies improve and applications expand, the need for compatibility with ever-decreasing input amounts and sub-optimal sample quality grows. Scientists must balance reliability and performance with faster turnaround, higher throughput and automation compatibility.

NEBNext Ultra II modules and kits for Illumina® are the perfect combination of reagents, optimized formulations and simplified workflows, enabling you to create DNA or RNA libraries of highest quality and yield, even when starting from extremely low input amounts.

The Ultra II workflow is available in convenient kit formats or as separate modules – it is easily scalable and automated on a range of liquid handling instruments.

<table>
<thead>
<tr>
<th>End Repair/ dA-Tailing</th>
<th>Adaptor Ligation</th>
<th>Clean Up/ Size Selection</th>
<th>PCR Enrichment</th>
<th>Clean Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module NEB #E7546</td>
<td>Module NEB #E7595</td>
<td>Component of NEB #E7103</td>
<td>Module NEB #M0544</td>
<td>Component of NEB #E7103</td>
</tr>
</tbody>
</table>

NEBNext Ultra II DNA Library Prep Kit for Illumina (NEB #E7645)

NEBNext Ultra II Library Prep with Sample Purification Beads (NEB #E7103)

The Ultra II workflow is available in convenient kit formats or as separate modules – it is easily scalable and automated on a range of liquid handling instruments.

The NEBNext Ultra II workflow has been cited in thousands of publications, as well as a growing number of preprints and protocols related to COVID-19. Citation information and extensive performance data for each product is available on neb.com.

To learn more about why NEBNext is the choice for you, visit NEBNext.com.
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SET FOR SUCCESS: AN INTRODUCTION TO ZHONGGUANCUN LIFE SCIENCE PARK

Zhongguancun Life Science Park (LS-Park) is a high-tech research and industrial park located in Beijing and focused on R&D and innovation in life science research, biotechnology, and biomedicine. LS-Park is playing a key role in the growth and expansion of Beijing’s science-based businesses and, more specifically, its biomedicine industry. Since 2014, plans have been afoot for Beijing to develop a national science and technology innovation center as a catalyst to transform the regional economy and drive economic growth in China.

The park spans an area of about 2.5 km² in the Changping district, encompassing parts of both Zhongguancun Science City and Future Science City. Beijing Zhongguancun Life Science Park Development Co., Ltd., a subsidiary of Zhongguancun Development Group (ZGC GROUP), is the developer and manager of LS-Park (see sidebar). It was established in August 2000 with an initial capital of RMB 300 million (USD 42 million). Central and municipal governments have high expectations for LS-Park as an innovation engine and a central hub for Beijing’s biomedical industry. In its first 20 years, the park has established a complete life cycle for biomedicine development, from basic research and discovery through pilot testing to clinical application. At the end of 2019, there were 528 companies in LS-Park, of which 24 were publicly listed on global stock exchanges. In addition, the park accommodates 185 research teams led by internationally recognized researchers, including several prominent academicians of the Chinese Academy of Sciences (CAS) and Chinese Academy of Engineering.

Production output has been impressive. In 2019, income from the park’s businesses topped RMB 186.1 billion (USD 26 billion). Some of the biggest earners included sewage treatment services provider Beijing OriginWater Technology, agrochemical producer Nutrichem Company Limited, health products manufacturer New Era Health Industry (Group), and Peking University International Hospital.

A foundation of innovation

A founding principle of LS-Park is its commitment to innovation. The park’s criteria for entry include independent research capability and a promising development plan. It favors companies that invest heavily in R&D, particularly in the fields of biomedical drug development and genetic testing services. Companies in the park invested around RMB 3.6 billion (USD 500 million) per year in R&D for 2018 and 2019.

However, according to LS-Park’s director, Weni Wang, a company’s level of technological innovation is reflected not only in its commitment to R&D spending, but also in other indicators, such as the number of patents filed and granted, and the number of technical and R&D personnel on staff. “An enterprise’s technological innovation is multidimensional,” he explains.

Innovation is driven in large part by the basic research undertaken at the park. Several national-level research centers—such as the National Institute of Biological Sciences, Beijing (NIBS)—call the park home. Within its 26 principal investigator-led laboratories, NIBS researchers perform studies in a variety of fields, including infection and autoimmunity, neurobiology, epigenetics, and computational and medical chemistry. From 2004 to 2016, researchers at NIBS published 285 independent research papers, 32 of which appeared in the three top life science journals—Science, Cell, and Nature.

LS-Park focuses not only on cultivating promising individuals, but also supports and encourages an innovative academic system that is increasingly international. Through special subsidiaries,
LS-Park wishing to see their basic research developed into viable drugs. Its founder, CAS academician Xiaodong Wang, applied his research on programmed cell death to developing anticancer drugs. Run as an independent private company, BeiGene has become a world leader in antineoplastic drugs and was listed on the U.S. Nasdaq stock exchange in 2016.

More and more companies in LS-Park are being recognized for their commercial value. In the first half of 2020, two R&D companies in the park, InnoCare Pharma and Beijing WANTAI Biological, have successfully been listed on the Hong Kong and Shanghai stock exchanges, respectively.

A perfect industry ecology
Leveraging its two decades of experience, LS-Park has created an effective development pipeline that takes promising businesses all the way from initial research findings to a marketable product. The 500-plus companies and seven national key engineering centers and laboratories housed in LS-Park provide an extensive depth and breadth of service to support this pipeline. The park offers a professional technology platform through which researchers can share resources related to drug analysis and screening, protein expression technology, and experimental animal models. It also matches companies with contract research organizations and suitable pilot platforms, in addition to promoting collaboration between companies within the park.

Companies at LS-Park benefit from generous financial assistance. The park layers a fiscal cushion over the innovation foundation to give companies a safe but solid launch pad that enhances available government funding mechanisms. It helps to attract private investment and government projects by supporting innovation in areas that will benefit everyone. The park also applies for subsidies, interest discounts, capital investment, and tax incentives as well as other forms of financing to facilitate industry development.

In 2017, LS-Park established a “financial supermarket” where investors and companies can meet and partner. Such a third-party platform offers a safe space for researchers-turned-entrepreneurs to access the financial marketplace. As with all the support LS-Park provides, this platform helps researchers find unique and exciting ways to change the world for the better.

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NIBS enables researchers to commercialize their findings and personally benefit from them. For example, NIBS researcher Wenhui Li leads Huahui Health, which has developed a treatment against hepatitis B virus by targeting the receptor to which the virus binds when infecting human cells.

Cooperation and commercialization
Another prominent national laboratory at LS-Park is the National Center for Protein Science Beijing. Also known as the Phoenix Center, it has led the world’s first human-organ proteome research cooperative project—the Human Liver Proteome Project. Through an agreement with Beijing C&N International Sci-Tech, a company established at LS-Park in 2004, researchers at the center are developing novel biotherapeutics. With about 300 staff, the Phoenix Center collaborates with over 20 labs around the world, including the Fred Hutchinson Cancer Research Center in the United States and the French National Institute of Health and Medical Research.

The park has also seen a rise in the number of high-tech companies launched there. CapitalBio Corporation, a Tsinghua University-sponsord company established in 2000, has acquired 221 patents related to developing biochip and genetic testing technologies. Through intimate cooperation with researchers at Tsinghua and other institutes—Huazhong University of Science and Technology, the Chinese Academy of Medical Sciences, and the Academy of Military Medical Sciences—the company is leading the industrialization of biotechnology in China.

BeiGene, a biomedicine company established in 2011, has expanded globally and has become a role model for companies at
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