



NEBsolutions™
OEM AND CUSTOMIZED PRODUCTS
NEW ENGLAND BIOLABS



 NEW ENGLAND
BioLabs® GmbH
enabling technologies in the life sciences





Do you know what goes into
a tube of NEB enzyme?



Expertise, responsiveness, flexibility and quality.

When you collaborate with New England Biolabs, you are getting much more than a high quality product in a tube. Nearly 40 years of experience in the design and manufacture of reagents, and a uniquely collaborative work ethic, are all part of doing business with NEB. Our team of researchers shares your commitment to the advancement of science, and brings experience in fields as diverse as protein engineering, gene expression, next generation sequencing, RNA biology and epigenetics. In addition, our ISO 13485-certified production facilities and our dedicated team of production scientists, each with extensive product development experience, will ensure that your product performs optimally.

Our company size is also a major asset. We are small enough to be agile, responding quickly to your needs, but large enough to expand manufacturing scale rapidly. Through NEBsolutions™, our OEM and custom products team, you gain access to NEB's array of resources, including the scientific know-how to optimize your product and the business savvy to best position it. By tapping into our knowledge base, we can help you realize the true and unique potential of your products.

Partner with NEBsolutions, and together, we will redefine the traditional OEM relationship.

Choose NEBsolutions and experience:

EXPERTISE :: With nearly 40 years of experience in enzyme technologies, we have a thorough understanding of the latest tools and advances in the field.

RESPONSIVENESS :: Our dedicated team of scientists and business professionals is available to quickly and comprehensively address your needs as they arise.

FLEXIBILITY :: We can accommodate changing and customized product specifications, scale-up, kitting and other supply chain requirements.

QUALITY :: With a proven track record of unsurpassed product quality and consistency, we are certified to ISO 13485:2003 and ISO 9001:2008 quality standards.



New England Biolabs' state-of-the-art 140,000 square foot research facility located in Ipswich, Massachusetts, USA.

3. GROWTH

Ensuring that you can meet your growing customer demands, NEB's ISO 13485-certified production facility can rapidly scale-up and meet new product format specifications.

4. MATURITY

If the market for your product matures, NEB will help minimize your production costs and maintain profitable supply.

2. LAUNCH

During its first tentative steps, NEB will be there to help support your product's commercialization strategy. Co-marketing, co-selling and co-branding are just a few of the ways we can help you.



1. PRE-LAUNCH

From the earliest stages, inception to pre-launch, NEB is ready to help support your product development strategy. Whether it is through scientific collaboration or simply technical advice, NEB can provide the right start for your product.

Product life cycle

NEBsolutions works collaboratively with you at all stages.

Expertise:

Nearly 40 years of experience at your fingertips.

NEBsolutions, a dedicated team within NEB, provides the highest level of support to meet the specific needs of our OEM and customized product customers. Drawing on extensive scientific experience and field-tested business acumen, the NEBsolutions team excels at meeting aggressive timelines and offers rapid lead-times. This includes leveraging the capabilities of the entire company to help customers achieve their goals. The NEBsolutions team will work to optimize reagent formulation, function and manufacturing process, resulting in an optimized product while minimizing cost.

When working with NEBsolutions, leverage the knowledge base of NEB's:

- :: Over 110 Ph.D.s, half with 10+ years of tenure at NEB
- :: Over twenty years of OEM supply and support experience
- :: Nearly forty years as a leader in the life science reagent business



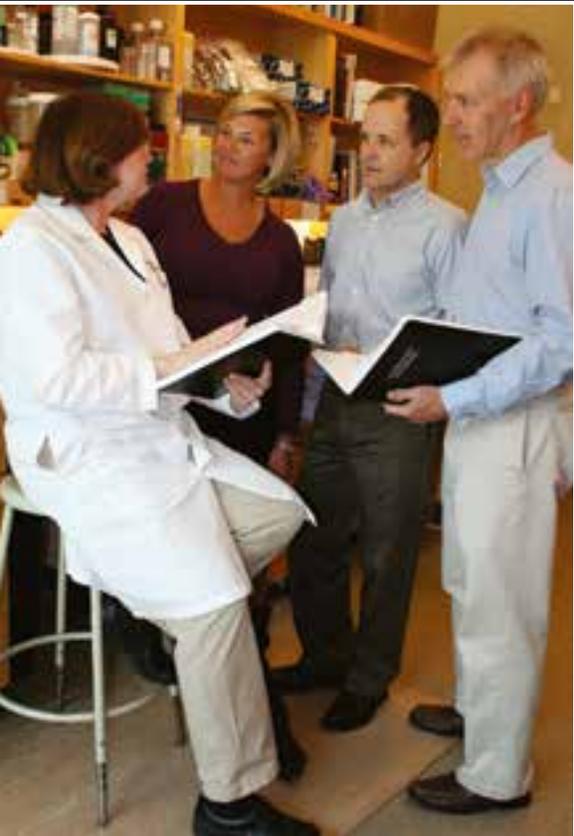
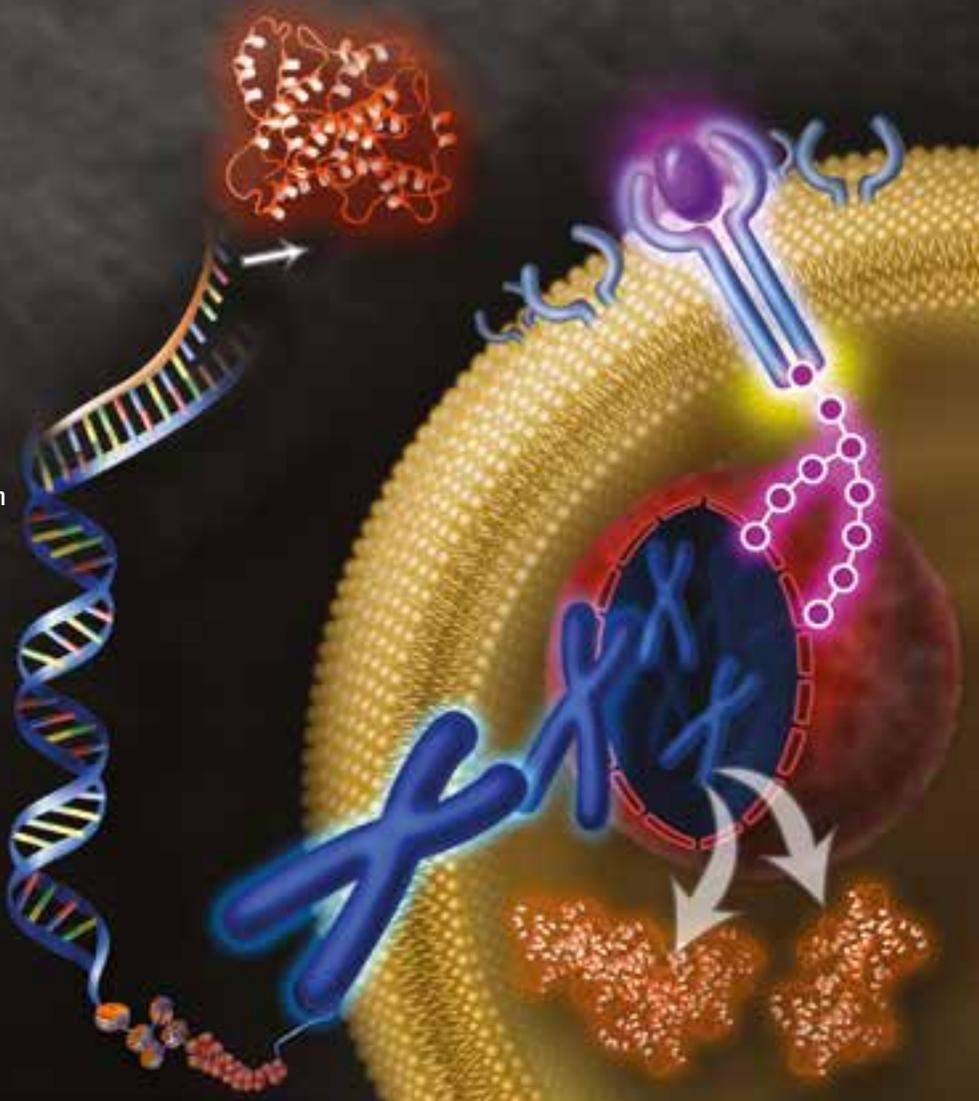
Our expertise has spurred the development of a wide range of products for a variety of scientific applications.

:: **DNA analysis** – Our expertise in enzymology has allowed us to engineer enzymes with altered specificities and improved performance for restriction enzyme digestion, DNA amplification and modification.

:: **Molecular diagnostics** – Our polymerase research has driven advances in isothermal amplification methods.

:: **DNA & RNA sequencing/library preparation** – Our experience in streamlining workflows has enabled us to provide custom reagent sets for NGS library preparation.

:: **Epigenetics** – Our research has helped to develop improved methods for 5-hydroxymethylcytosine detection.



"I've been involved with developing commercial molecular biology assays for years. When it comes time to choose a source of enzymes, my first choice is NEB. In addition to having a wide selection of enzymes, I've been impressed with their rigorous test procedures and overall quality of their products. The staff is responsive, knowledgeable, customer-focused and a pleasure to work with."

SR. FELLOW, ANALYTICS & KNOWLEDGE TRANSFER,
MOLECULAR BIOLOGY REAGENTS PROVIDER

Responsiveness:

Solutions when you need them.

The NEBsolutions team stands ready to meet your needs – with a shared sense of urgency. Your project is our project, and your success is our goal. We strive to build a uniquely collaborative relationship that grants you immediate access to our breadth of scientific resources. Additionally, our experience and organizational structure allow us to make decisions quickly, apply resources and deliver solutions when you need them.

With NEBsolutions you can expect:

- :: Rapid price quotes, often within two business days
- :: Order acknowledgement within one business day
- :: Quick turnaround of custom products, often less than two weeks
- :: Access to our in-house scale-up capabilities, including fermentation and downstream processing
- :: Access to QC data, certificates of analysis, specialized packaging options, varying product formulations and the expertise to use this information to the fullest
- :: ISO 13485-certified manufacturing facilities



Our dedicated team of specialists rapidly adjusts production to your changing specifications.



"The NEB OEM Department is highly responsive to customer needs. Our company has had many requests as we better establish our specifications and complete qualification of a wide variety of enzymes and buffers. In every case, NEB has responded quickly, consistently, and with high quality deliverables that enable our company to meet its aggressive goals. Service, in general, is clearly a major strength for NEB when compared to the service provided by its competitors. NEB provides a great deal of flexibility and a 'can do' attitude that we would like to see in all our suppliers."

PURCHASING DIRECTOR, GENOMICS COMPANY

Flexibility:

Meeting your specifications.

Being ready and having the experience to quickly meet our customers' requirements are hallmarks of the NEBsolutions team. This includes custom product formulations, quality controls, varying volumes, vials and bottles, private labeling and kitting. Our Fermentation Facility and Scale-Up and Development Suite ensure that volume requirements can be met without delay.

Your product development will benefit from the following manufacturing capabilities:

- :: Optimized product yield, which begins in our small-scale, high-density fermentation labs, can be rapidly brought to full-scale in our Scale-Up and Development Suite
- :: Large-scale enzyme preparations via our Fermentations Facility, which houses 100, 300, and 500 L fermenters, ensure that volume requirements are easily met
- :: Over 65 ÄKTA HPLC machines, the largest connected network of ÄKTAs in the USA, are available for process development
- :: Large-scale buffer manufacturing and custom vialing
- :: Our automated packaging facility can easily fill tens of thousands of vials per day
- :: Customized delivery schedules, inventory management and adjustments are all available to you



The NEB Fermentation Facility is ready to meet any changes to volume requirements.



“NEB’s [flexibility to provide customized products] was excellent. When we had issues with an alternative supplier’s offerings, NEB met our needs in terms of custom vialing, custom labeling and custom volumes.”

R&D LEADER,
UK SEQUENCING FACILITY

Quality:

Setting the standard.

NEB's products are designed and manufactured in our ISO 13485:2003- and ISO 9001:2008-certified facility in Ipswich, MA., USA. In addition, the Quality Control group is constantly improving the stringency and range of NEB's quality controls, ensuring that our product quality is "best-in-class". As our partner, this means that you can rely on our unsurpassed product purity and lot-to-lot consistency to ensure that your product will perform to expectations, every time.



Among the extensive range of services, the NEBsolutions team will work directly with you to:

- :: Validate your critical raw materials
- :: Develop customer-defined product specifications, complete QA and QC assays and certificates of analysis
- :: Reserve product lots specifically for your use
- :: Barcode products (1-D and 2-D) to meet workflow requirements
- :: Meet your molecular diagnostics manufacturing requirements as an ISO 13485:2003 accredited facility
- :: Support your regulatory compliance needs





NEB scientists can work with you to develop product specifications ideal for your application.



“NEB has been providing our company with high quality enzymes for several years. In that time, we have found that the quality of their products is only surpassed by their technical expertise and highly professional staff. They set the standard for quality products and customer service.”

MANAGER, NEXT GENERATION
SEQUENCING PLATFORM PROVIDER

Meeting your demands:

Quality controls and customization.

New England Biolabs has an extensive list of quality controls used to test its products. We can also bring client-derived assays in-house, as part of the final QC process, or in parallel with the customer's own testing.

Unit Activity Assay	This assay differs for each enzyme, based on their respective properties. Tight specifications around this value ensure lot-to-lot consistency.
Functional Assay	Performed on enzymes that are components of a kit or a mixture of multiple enzymes for a specific application. QC testing on each component is performed individually and then together. Examples include next gen sequencing runs for all NEBNext® products.
Physical Purity	Enzymes are evaluated by SDS-PAGE and silver-stained gels to ensure the highest levels of purity and the absence of contaminating proteins.
Protein Concentration	The protein concentration of each sample is confirmed by OD 280, as well as measuring the specific activity of each enzyme.
DNA Contamination	Enzymes are screened by qPCR to ensure no contaminating genomic DNA is present. The specification for this assay is less than one <i>E. coli</i> genome per sample.
Exonuclease Activity	Using a combination of radioactively labelled DNA substrate and state-of-the-art capillary electrophoresis-based assays, NEB is able to detect and identify very low levels of exonuclease activity. This helps ensure NEB's reagents are free of contaminating exonucleases.
Endonuclease Activity	To ensure that there are no contaminating enzymes that could cause nicking or non-specific nuclease degradation, reagents are incubated with supercoiled plasmid DNA for 4 hours to demonstrate the absence of endonuclease contamination.
Non-specific DNase Activity	Enzymes are incubated overnight with Lambda DNA to confirm that there is no additional non-specific nuclease activity present in the sample.
RNase Activity	Enzymes are screened in an overnight assay which detects the presence of even trace amounts of RNase, by assessing the degradation of labelled RNA. The absence of degradation confirms that the enzymes are RNase-free.
Phosphatase Activity	The absence of contaminating phosphatases is confirmed by spectrophotometric analysis.
Comparative Assay	Each new lot of enzyme is compared to previous lots for unit activity, ensuring lot-to-lot consistency for each enzyme.



Choose from a variety of vial options to fit your needs.



Automatic labeling ensures accuracy.



Several bottle options are available to meet your needs.

NEB provides extensive product customization to meet your specific needs, including formulations, quality controls, volumes and private labeling. Our packaging options include:

Vials in a variety of volumes and formats from several manufacturers

- :: tethered screw cap
- :: untethered screw cap
- :: skirted
- :: non-skirted
- :: DNase / RNase-free

Customized labels

- :: choice of material and color
- :: size
- :: options for font and logo usage
- :: in-house printing & design
- :: barcoding (1-D and 2-D)
- :: compatibility with most label design programs

DNase-free HDPE bottles for bulk fills

- :: sizes ranging from 4 ml to 2 L
- :: a variety of mouth formats

Kitting capabilities

- :: box and insert design and construction
- :: outside labeling
- :: shrink wrapping

Formulations can be customized to include special concentrations, lyophilization-ready buffer compositions, and multiple enzyme blends.



Contact us at NEBsolutions@neb.com to experience what NEBsolutions can do for you.

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NEB's extensive global logistics and distribution network consists of several subsidiary offices that offer the highest levels of service and support, as well as a consortium of experienced distributors. Accessing our network can increase your opportunity for global growth.

SUBSIDIARY OFFICES

- Canada ● France ● Japan ● UK | ● NEB Inc.
- China ● Germany ● Singapore | ● Distributor