

NGS Buyer's Checklist: Covering All the Bases.

Thanks to the pioneering world of next-generation sequencing (NGS), meaningful discovery is churning at a pace unmatched throughout history. For this reason, labs that don't already own an NGS system are making a push to acquire equipment of their own.

If you're a principal investigator or manager for one of these labs, you have an important purchasing decision to make. The good news is that the market today offers plenty of choice. Use this checklist to guide your buying process.

Define Your Applications.

What types of NGS experiments do you plan to perform and which applications will you use most? Consider your application's needs for these three areas:

- Throughput per run.
- Read length.
- Paired-end sequencing.

Understand the Equipment Options.

Buying equipment is a commitment; consider your needs now and for the future.

- Desktop Low-Throughput Sequencer.
- Desktop High-Throughput Sequencer.
- High-Throughput / High-Volume Sequencer.

Think About Budget Holistically.

There are many factors to consider beyond the initial capital expenditure.

- Operational Expenses: What's the cost per sample? Factor in consumables and library prep kits.
- Hands-On Labor: Consider the element of efficiency. The more time a lab tech must spend to carry out a given sequencing experiment, the less time that person has available for other important projects.
- Ancillary Equipment: What add-ons are required? Determine whether additional equipment will be needed to get the job done.
- Data Storage: On-site or in the cloud? Inquire about the costs and learn about the benefits and drawbacks of each solution.

Envision Your New Workflow and Informatics.

- Seek out any and all opportunities to save time and ensure accuracy.
- Sample and Library Preparation: How many days will it take to create the libraries? How much of that time is "hands-on"? Does the equipment vendor offer a library solution? Do the sample prep solutions support a broad range of applications?
- Data Analysis: Explore what types of analysis tools and protocols are available to users of a given platform.

Address the Big Issue of Quality.

If you're trying to put together a jigsaw puzzle and you can't make out the design on some of the pieces, you're going to have a difficult time achieving your goal. The same is true of DNA-driven research.

- Q-Score: Quality scores measure the probability that a base is called incorrectly. Thus, a higher quality score indicates a smaller probability of error.
- Instrument Operation: Address the homopolymer issue.
- Workflow Design: Can you plug and play?
- Underlying Technology: Different instruments use different underlying sequencing platforms. Make sure the technology is well proven and scalable to your future needs.

Know the Terms.

Download the full Buyer's Guide for a glossary of the most frequently used terms. If, during the buying process, you run into a word or phrase you don't know, ask a field application specialist or company representative for clarification.

Consider Reputation, Community and Support.

Ensure there's an established base of users and responsive service support. Consider the following items.

- Reputation: Investigate published research and ask existing users about ease of workflow.
- Community: Look for an established group of users who specialize in your key applications.
- Support: Seek out a well-defined and personalized onboarding process.

Notes