

Next Gen Sequencing on the AVITI

Various useful tips about sequencing on the Element Biosciences AVITI.

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Project Planning

Each project is unique with Next Gen Sequencing. For all projects, please consult with us at no charge. We will work with you to determine the best method to answer your question. Below is an example of how pricing will vary depending on what the needs of the project are:

The Element Biosciences AVITI sequencer runs multiple flow cell sizes. The costs to run aren't calculated on a "per sample" basis, but rather on the cost of the flow cell, any library kits (if we are building libraries for you), and labor. Other factors also come into play such as how much depth of coverage the project needs, and how many samples are being run (this is where cost/sample starts to mean something). For example, if a user wants to run 2 human genomes at ~45x coverage, that would fit on one large flow cell and would cost approximately \$2700 from receipt of the DNA to delivery of the data, which is \$1350/sample. If a user had only one genome they wanted sequenced, unless we are able to collect more genomes from others to fill up the flow cell, the cost would still be the cost of the library, flow cell, and labor, approximately \$2700. If a user has three genomes they want to run at ~30x coverage, costs would be \$2700/3 samples or \$900/sample. Similarly, other projects not WGS, costs are based on the same factors mentioned above. In short, please discuss each project with core staff.

RNA Sequencing

RNA Seq polyA Capture

We have brought RNA Seq online using Watchmaker Genomics kits for polyA capture and sequencing on the Element Biosciences AVITI. We expect to be able to offer a cost of \$250/sample in batches of 16 samples providing 40 million or more reads/sample using 2x75bp read lengths. If you desire 2x150bp read lengths, that drives the cost to \$300/sample. If you do not have 16 samples, we will either need to try to find other labs to share a run with your lab or we'll have to charge more per sample to cover the run costs.

The AVITI provides average Q scores of Q40+ (1:10,000 error rate) versus the standard Q30+ scores off of competing platforms (1:1000 error rate), plus it handles higher GC composition better as well as homopolymer tracts. Although RNA Seq is often a counting application where this improved accuracy may not matter as much, in instances where the goal is to find sequences in the RNA transcripts, the ability to run 2x150 at high accuracy may make sense.

Please feel free to reach out to discuss potential projects. The core is happy to help all of our user base achieve the results they are looking for.

Watchmaker makes kits for ribodepletion as well (with globin depletion if needed) and we can look into costs for running this if a project needs it.

As always, if your lab has made libraries and simply needs them sequenced, please talk to Derek about that as almost any library made for Illumina sequencing can work on the AVITI.