

Sequencing – General

Service Overview

The NGS Core Facility offers a comprehensive general sequencing service covering quality control, sample pooling (if necessary), sequencing, and primary data delivery. This document summarises the key technical parameters, deliverables, and information requirements.

Technical Specifications

Parameter	Specification																									
Library Preparation	Performed by the customer. All library types compatible with Illumina and Element Biosciences sequencing platforms are accepted.																									
Sequencing Platform	Element Biosciences AVITI24 or Illumina NovaSeq X Plus																									
Run Type	Single-end or paired-end																									
Data Output	Depends on the selected sequencing platform, flow cell type and read length (see below).																									
Illumina NovaSeq X Plus	Output per flow cell for various read lengths																									
	<table><tr><td>Flow cell type</td><td>1.5B</td><td>5B</td><td>10B</td><td>25B</td></tr><tr><td>2 × 50 bp</td><td>~165–238 Gb</td><td>~500–650 Gb</td><td>~1–1.3 Tb</td><td>~2.6–3.5 Tb</td></tr><tr><td>2 × 100 bp</td><td>~330–476 Gb</td><td>~1–1.3 Tb</td><td>~2–2.7 Tb</td><td>~5.3–7 Tb</td></tr><tr><td>2 × 150 bp</td><td>~500–716 Gb</td><td>~1.5–2 Tb</td><td>~3–4 Tb</td><td>~8–10.5 Tb</td></tr><tr><td>2 × 300 bp</td><td>~1–1.4 Tb</td><td>-</td><td>-</td><td>-</td></tr></table>	Flow cell type	1.5B	5B	10B	25B	2 × 50 bp	~165–238 Gb	~500–650 Gb	~1–1.3 Tb	~2.6–3.5 Tb	2 × 100 bp	~330–476 Gb	~1–1.3 Tb	~2–2.7 Tb	~5.3–7 Tb	2 × 150 bp	~500–716 Gb	~1.5–2 Tb	~3–4 Tb	~8–10.5 Tb	2 × 300 bp	~1–1.4 Tb	-	-	-
	Flow cell type	1.5B	5B	10B	25B																					
	2 × 50 bp	~165–238 Gb	~500–650 Gb	~1–1.3 Tb	~2.6–3.5 Tb																					
	2 × 100 bp	~330–476 Gb	~1–1.3 Tb	~2–2.7 Tb	~5.3–7 Tb																					
	2 × 150 bp	~500–716 Gb	~1.5–2 Tb	~3–4 Tb	~8–10.5 Tb																					
	2 × 300 bp	~1–1.4 Tb	-	-	-																					
	Reads passing filter per flow cell																									
	<table><tr><td>Flow cell type</td><td>1.5B</td><td>5B</td><td>10B</td><td>25B</td></tr><tr><td>Single-end reads</td><td>~1.6–2.4 billion</td><td>~5–6.5 billion</td><td>~10–13 billion</td><td>26–35 billion</td></tr><tr><td>Paired-end reads</td><td>~3.2–4.8 billion</td><td>~10–13 billion</td><td>~20–26 billion</td><td>~52–70 billion</td></tr></table>	Flow cell type	1.5B	5B	10B	25B	Single-end reads	~1.6–2.4 billion	~5–6.5 billion	~10–13 billion	26–35 billion	Paired-end reads	~3.2–4.8 billion	~10–13 billion	~20–26 billion	~52–70 billion										
	Flow cell type	1.5B	5B	10B	25B																					
Single-end reads	~1.6–2.4 billion	~5–6.5 billion	~10–13 billion	26–35 billion																						
Paired-end reads	~3.2–4.8 billion	~10–13 billion	~20–26 billion	~52–70 billion																						
Element Biosciences AVITI24	Output per flow cell for various read lengths																									
<table><tr><td>Flow cell type</td><td>Low output</td><td>Medium output</td><td>High output</td></tr><tr><td>2 × 75 bp</td><td>~20–22 Gb</td><td>~100–110 Gb</td><td>~200–220 Gb</td></tr><tr><td>2 × 150 bp</td><td>~100–110 Gb</td><td>~200–220 Gb</td><td>~400–450 Gb</td></tr><tr><td>2 × 300 bp</td><td>-</td><td>~60 Gb</td><td>~180 Gb</td></tr></table>	Flow cell type	Low output	Medium output	High output	2 × 75 bp	~20–22 Gb	~100–110 Gb	~200–220 Gb	2 × 150 bp	~100–110 Gb	~200–220 Gb	~400–450 Gb	2 × 300 bp	-	~60 Gb	~180 Gb										
Flow cell type	Low output	Medium output	High output																							
2 × 75 bp	~20–22 Gb	~100–110 Gb	~200–220 Gb																							
2 × 150 bp	~100–110 Gb	~200–220 Gb	~400–450 Gb																							
2 × 300 bp	-	~60 Gb	~180 Gb																							

	Reads passing filter per flow cell <table><tr><td><u>Flow cell type</u></td><td><u>Low output</u></td><td><u>Medium output</u></td><td><u>High output</u></td></tr><tr><td>2 × 75 bp</td><td rowspan="2">~ 250 million</td><td rowspan="2">~ 500 million</td><td rowspan="2">~ 1 billion</td></tr><tr><td>2 × 150 bp</td></tr><tr><td>2 × 300 bp</td><td>-</td><td>~100 million</td><td>~300 million</td></tr></table>	<u>Flow cell type</u>	<u>Low output</u>	<u>Medium output</u>	<u>High output</u>	2 × 75 bp	~ 250 million	~ 500 million	~ 1 billion	2 × 150 bp	2 × 300 bp	-	~100 million	~300 million
<u>Flow cell type</u>	<u>Low output</u>	<u>Medium output</u>	<u>High output</u>											
2 × 75 bp	~ 250 million	~ 500 million	~ 1 billion											
2 × 150 bp														
2 × 300 bp	-	~100 million	~300 million											
Quality Target	> 75% of bases ≥ Q30													
Deliverables	FASTQ files (sequences and base quality scores)													
Turnaround Time	1–2 weeks after sample receipt, provided all samples meet the specified input requirements													
Expedited Processing	Faster turnaround times are available upon request and may incur additional costs; please contact us in advance													

Starting Material

Please ensure that your samples meet the following input requirements.

The required volume and concentration of the individual pre-prepared libraries or the pre-prepared sample depend on various factors (such as the number of samples, sequencing depth, sequencing platform, etc.). For project-specific recommendations, please contact us before submitting your samples.

Material	Molarity	Volume
Pooled Final Library	> 2 nM	see table below

Flow cell type	Volume required for <u>one lane</u> [µL]	volume required for <u>all lanes</u> [µL]
Illumina NovaSeq X Plus 1.5B	20	35
Illumina NovaSeq X Plus 5B	20	130
Illumina NovaSeq X Plus 10B	20	130
Illumina NovaSeq X Plus 25B	30	210
Element Biosciences AVITI24 Low output	20	35
Element Biosciences AVITI24 Medium output	20	35
Element Biosciences AVITI24 High output	20	35

Notes

- The sequencing platform (AVITI24 or NovaSeq X Plus) is selected the NGS Core Facility based on project requirements, instrument availability and scheduling.
- Please refer to our [Sample Requirements & Submission Guidelines](#) for information on quality control, data storage, liability, confidentiality and general sample preparation and shipping instructions.

Contact

For questions and pricing information, please contact:

NGS Core Facility Bonn

University of Bonn

E-mail: NGS-Core@uni-bonn.de

Website: <https://www.medfak.uni-bonn.de/en/research/infrastructure/ngs>