



firefly® + technical note

Illumina DNA Prep

Overview

- Illumina DNA Prep (document #1000000025416 v11)
- **The Illumina DNA Prep (IDP)** is a library prep kit that uses tagmentation to rapidly fragment DNA and add adapter sequences. The kit may be used with as little as 1ng input.
- This method has been optimised using Biorad Hard Shell Plates and the Alpaqua Magnum FLX magnet. The use of alternative labware may require further optimization. This protocol has been written to be compatible with v2.0.1 for 96 samples.
- Instrument configuration: firefly + 6-head, genomics, ATL head, 96 ODT
- Development software version: v2.0.1
- Deviation(s) from the published method:
 - Ethanol Additions during bead clean-up have been slightly reduced to allow for transfer removal of ethanol with 125µl tips.

firefly protocols

Protocol number	Protocol name	firefly run time (minutes)	Thermocycler run time (minutes)
1 of 1	Illumina DNA Prep	143	30

Table 1. Overview of the protocol to process 96 samples using Illumina DNA Prep on SPT Labtech's firefly. Times may vary based on user.

Input variables

Input Variable	Interval	Range	
		Minimum	Maximum
Number of columns (1-12)	1	1	12
Starting column on Index plate	1	1	12

Table 2. General variables for using Illumina DNA Prep on SPT Labtech firefly liquid handler.

Master Mix Calculations – Reservoir Volumes

Reagent	Total Required Volume (ul)
Bead- Linked Transposomes (BLT)/Tagmentation Buffer 1 (TB1) 1:1 Mix	2320
Enhanced PCR Mix (EPM)/Nuclease-free water (NFW) 1:1 Mix	4640
Nuclease-free water	5000
Resuspension Buffer (RSB)	3600
Tagment Stop Buffer (TSB)	1240

Table 3. Master Mix volumes for processing 96 samples with Illumina DNA Prep on SPT Labtech firefly liquid handler. For details regarding the volumes required for variable sample inputs please reach out directly to SPT Labtech (see contact details below).

Consumables and Accessories

Pipette Head Consumable Type	Product Number(s)	Protocol 1
50 µL Tips (Filtered)	050-96-FF-AL-FS	—
125 µL Tips (Filtered)	125-96-FF-AL-FS	8x
ATL Tip Stand	3276-08335	3x

Table 4. This table outlines the Pipette Head consumables required for the protocol, including product numbers and quantities.

Dispense Head Consumable Type	Product Number(s)	Protocol 1
Syringes (Ultra-low Retention)	4150-07208	—
Syringes (Standard)	4150-07200	5x
Reservoirs (Standard)	4150-07103	4x
Reservoirs (Low Dead Volume)	4150-07202	1x
Reservoirs (High Volume)	4150-07300	—

Table 5. This table outlines the Dispense Head consumables required for the protocol, including product numbers and quantities.

Plate Type	Product Number(s)	Protocol 1
Biorad Hard Shell Plate	HSP-9601	5x
Abgene 0.8ml Deep Well	AB0765	2x
Abgene 1.2ml Round Deep Well	AB0564	1x
Index Adapters Plate	—	1x
Azenta Auto-Sealing PCR Plate Lid	4ti-0291	1x

Table 6. Table detailing the types and quantities of plates required for the protocol.

Accessory Type	Product Number(s)	Protocol 1
Alpaqua Magnum FLX	A000400	1x
40mm Upper Deck Riser	3276-01838	1x
Thermo Adapter Block	3276-01065	1x

Table 7. This table lists the accessories needed for the protocol.

Workflow overview



Figure 1. Overview of the steps performed by firefly to automate Illumina DNA Prep.

Workflow details

Protocol 1 of 1 - Illumina DNA Prep

This firefly + protocol performs the following steps from the Illumina DNA Prep (document #1000000025416 v11):

- Tagment Genomic DNA
- Post Tagmentation Clean Up
- Amplify Tagmented DNA
- Clean Up Libraries

Prior to executing this protocol:

- Prepare the Tagmentation master mix (BLT/TB1 1:1)
- Prepare the DNA amplification master mix (EPM/NFW 1:1)
- Prepare reagent plates (IPB, TWB and fresh 80% EtOH)

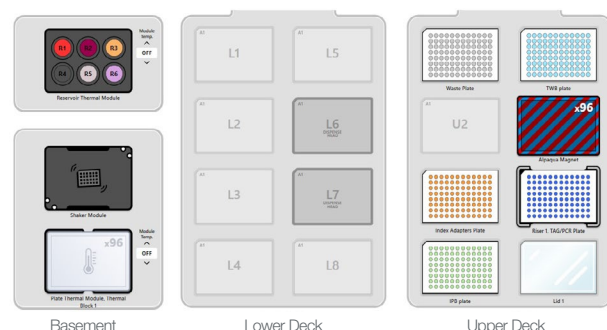


Figure 2a. Illumina DNA Prep of firefly initial deck layout.

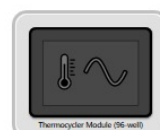


Figure 2b. Illumina DNA Prep of firefly + module initial layout.

For questions regarding SPT Labtech's firefly, contact our support team at fireflysupport@sptlabtech.com

Appendix 1: Consumables and Accessories

Supplier	Part Name	Part Number
SPT Labtech	dragonfly® discovery LDV Reservoirs	4150-07202
SPT Labtech	dragonfly® Reservoirs	4150-07103
SPT Labtech	dragonfly® discovery Ultra Low Retention Syringes	4150-07208
SPT Labtech	dragonfly® discovery Syringes	4150-07200
SPT Labtech	firefly® Pipette Tips, 100µL, with Filters, Sterile	050-96-FF-AL-FS
SPT Labtech	firefly® Pipette Tips, 35µL, with Filters, Sterile	125-96-FF-AL-FS
SPT Labtech	Thermal Adapter for PCR Plate, 96	3276-01065
Biorad	Hard Shell Plate	HSP-9601
Thermo Fisher Scientific	Abgene 0.8ml Deep Well	AB0765
Thermo Fisher Scientific	Abgene 1.2ml Round Deep Well	AB0564
Azenta	Azenta Auto-Sealing PCR Plate Lid	4ti-0291

Table 8. Overview of consumables and accessories required for processing 96 samples using Illumina DNA Prep on SPT Labtech's firefly indicating their part number.