

TOPICS

NovaSeq X Plus

XLEAP chemistry
NextSeq2000

22nd

Core Facility Genomics
(CFG) user webinar

CFG LIMS update

RDC/ADORE

NovaSeq X Plus

The Core Facility Genomics is happy to announce that a NovaSeq X Plus sequencer arrived at the CFG.

Currently we are validating the machine. Validation has started for the 10B flow cell, the 1,5B and 25B flow cell will follow. At the end of Q3 they will all be made available for in-house sequencing on the NovaSeq X Plus.

Having a NovaSeq X Plus in-house has *several important advantages*. In-house sequencing means communication lines are shorter, which makes it easier to solve potential issues or handle additional data requests.

In addition, with our own NovaSeq X Plus we will now be able to handle the increase in NGS sequencing submissions. Finally, it makes the CFG more flexible in implementing novel techniques and innovations.



For the in-house sequencing we will offer the following Illumina flow cell options:

- NovaSeqXPlus 25B flow cell 300 cycles
- NovaSeqXPlus 10B flow cell 300 cycles
- NovaSeqXPlus 10B flow cell 200 cycles
- NovaSeqXPlus 10B flow cell 100 cycles
- NovaSeqXPlus 1,5B flow cell 300 cycles
- NovaSeqXPlus 1,5B flow cell 200 cycles
- NovaSeqXPlus 1,5B flow cell 100 cycles

Custom primer sequencing is available per purchase of a complete flow cell.

Moreover, the CFG is working on establishing shorter turnaround times for sequencing a complete flow cell for one submission. More information on this will follow in Q3.

It is important to note that the CFG has backup agreements for the NovaSeqXPlus with other universities that, like Amsterdam UMC, adhere to strict regulations regarding data security and ISO certification.

We are updating the [NGS Sequencing submission form](#). To make sure you use the most up-to-date form, please visit the [CFG website](#) or K2. Sequencing pools can be submitted as before.

On the following page we introduce the new XLEAP-SBS chemistry, which is used on the NovaSeq X Plus, but can also be used on the NextSeq2000.

For all questions please contact us at: cfg@amsterdamumc.nl.

XLEAP chemistry NextSeq2000

With the NovaSeq X Plus sequencer Illumina introduced the XLEAP-SBS chemistry. This chemistry provides better accuracy and improved Q-score calibration. With the update of the control software on the NextSeq2000, the XLEAP-SBS chemistry is now also available on the NextSeq2000. The data quality improvements introduced with XLEAP-SBS chemistry and improved calibration on the NovaSeq X Plus translate well to the NextSeq2000.

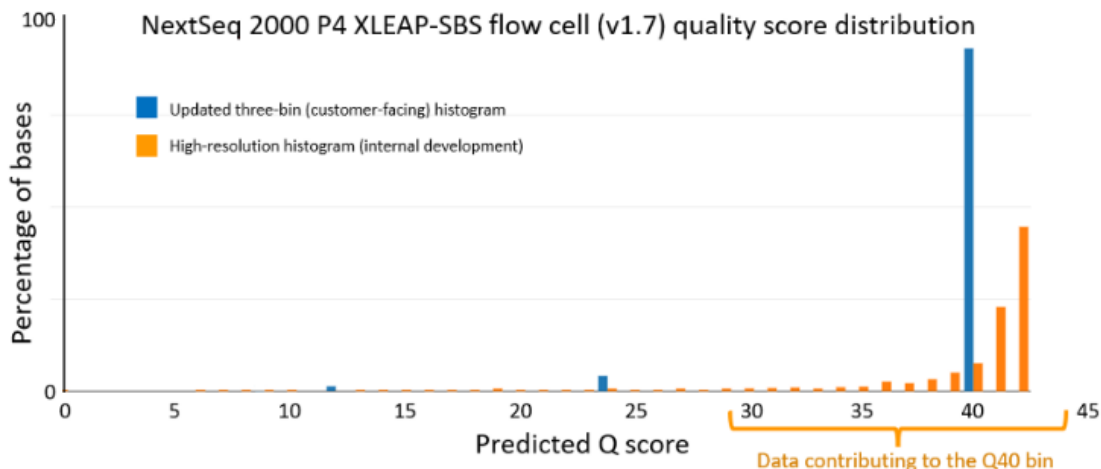


Figure: [Link to Illumina website with XLEAP-SBS chemistry results](#)

Summary: the average Q score in the highest-quality bin achieves an empirical error rate of Q40 (1 error in 10,000), up from Q34. Bases in the Q40 bin represent more than 90% of output bases of the run. Considering the high-resolution histogram, the majority of these bases actually equal or exceed Q40.

The CFG is currently validating this chemistry. In Q3 the XLEAP chemistry will be available for sequencing on the NextSeq2000.

In Q3 a new kit, the P4, will also be available. More information and the specifications can be found here [NextSeq 1000 & 2000 System Specifications | Output, run time, & more \(illumina.com\)](#). The P1 and P2 are available at up to 600 cycles (2x 300 bp).

flow cell type	single reads M = million B=Billon
P1	100M
P2	400 M
P3	1.2B
P4	1.8B

With the XLEAP-SBS chemistry available for the NextSeq2000, a complete flow cell on the NextSeq2000 can be purchased for smaller projects. As mentioned, the CFG is working on shorter turnaround times when a complete flow cell is purchased.

22nd Core Facility Genomics (CFG) user webinar, September 2024

The next CFG user webinar will be in September. An invitation will be send during the summer break. **The topic of the webinar will be our new NovaSeq X Plus sequencer and ICT.**

Reminder: recordings of previous CFG user webinars can be found at: cfg.amsterdamumc.nl

CFG LIMS update V1.2

On the 4th of July we successfully updated the [CFG LIMS system](#). Known bugs have been fixed and foundations have been laid for new functionality.

Registration CFG users

The most significant change, that immediately impacts the use of CFG LIMS by CFG users, is the registration of CFG users. Starting from July 5th the registration of CFG users will **only** occur through CFG LIMS. The current registration form will no longer be used for Amsterdam UMC users. Both the registration of new users, as well as the registration of additional services/kostenplaatsen, will be done only via the new CFG LIMS from July 5th onwards.

We have therefore updated our procedures as described in [Procedure voor het registreren van klanten en aanmelden van samples Core Facility Genomics](#). To register at CFG LIMS use the guide [CFG-LIMS, handleiding voor aanvrager](#). Registration of external CFG users will not change.

Kostenplaats administrators

Kostenplaats administrators will now also be automatically informed by e-mail when users request use of their kostenplaats.

New equipment scheduler

Additionally a new equipment scheduler has been created, where users can easily book timeslots for the equipment they want to use. Equipment will gradually be transferred from the current Outlook agenda to CFG LIMS. Users will be notified when this change happens for the machine they use.

If there are any questions about CFG LIMS, please [contact us](#).

RDC-ADORE building



We are happy to inform you that in 2025 the CFG lab will also have a location in the new RDC-ADORE building at the VUmc. As our users at location AMC are accustomed, we will facilitate the central availability of equipment for all CFG users. In addition, all research and diagnostic labs at the RDC-ADORE and surrounding AUMC / VU campus will be able to use these machines when needed.

All CFG users will receive an email with the current planning of the relocation of the services in the upcoming year. Keep in mind that a CFG service lab will also stay at location AMC, and samples can be submitted at all times at both locations (VUmc & AMC). If you have questions about this planning, please [contact us](#).