

# DNA NGS 3K Assay Quick Guide

## LabChip® GX Touch/GXII Touch

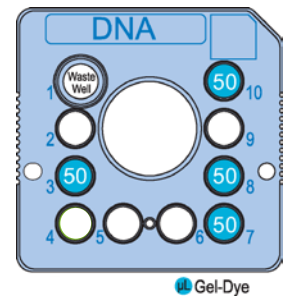
### Chip Preparation

**WARNING:** Dye Solution contains DMSO. Avoid contact with skin and eyes.

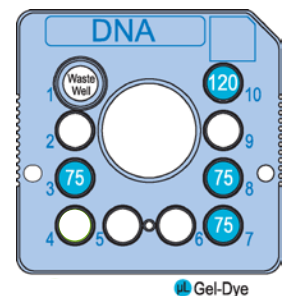
**NOTES:**

- Unlike other DNA assays, the Marker solution for DNA NGS 3K is used as the sample diluent when preparing the sample plate, and is NOT pipetted into well 4 of the chip. For the X-Mark chip, well 4 is not an active well.
- For accurate concentration readings, care must be taken to thoroughly mix the sample and marker during the dilution step.
- The Dye Concentrate solution and the Marker solution are sensitive to light. Avoid prolonged exposure of these solutions to light during chip and sample preparation.

- 1 Allow the chip and reagents to equilibrate to room temperature for about 30 minutes before use. **The Dye Concentrate must be completely thawed and vortexed before use.** One vial of DNA Hi Sens/NGS3K Gel Matrix ● is good for **4 Low-Throughput chip preparations (for up to 48 samples each) or 2 High-Throughput chip preparations (for up to 192 samples each).**
- 2 Prepare Gel-Dye by adding **13 µL** of DNA NGS 3K Dye Concentrate ● to 1 vial of DNA Hi Sens/NGS3K Gel Matrix ●.
- 3 Vortex and transfer mixture into **two spin filters** (approximately 550 µL per spin filter).
- 4 Centrifuge at **9200 rcf for 10 minutes at room temperature.** Ensure all of the gel/dye passes through the filter and then discard the filter.  
**Note:** Gel-Dye can be stored for up to 3 weeks in the dark at 4°C.
- 5 Rinse and aspirate each active well (1, 3, 7, 8, and 10) twice with molecular biology grade water.
- 6 Use a reverse pipetting technique to add gel-dye to chip wells 3, 7, 8, and 10 as shown in **Figure 1** (Low-throughput) or **Figure 2** (High-throughput).
- 7 Clean both sides of the chip window with the supplied clean room cloth dampened with 70% isopropanol. **Note:** Ensure chip well 1 and chip well 4 are empty before placing the chip on the LabChip GX Touch.



**Figure 1.** Low-throughput (Up to 48 samples)



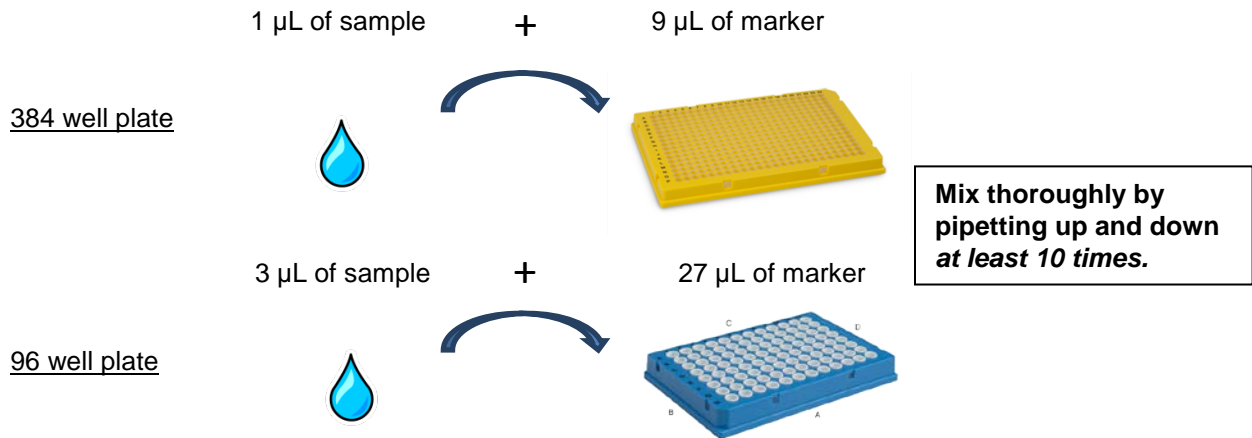
**Figure 2.** High-throughput (Up to 192 samples)

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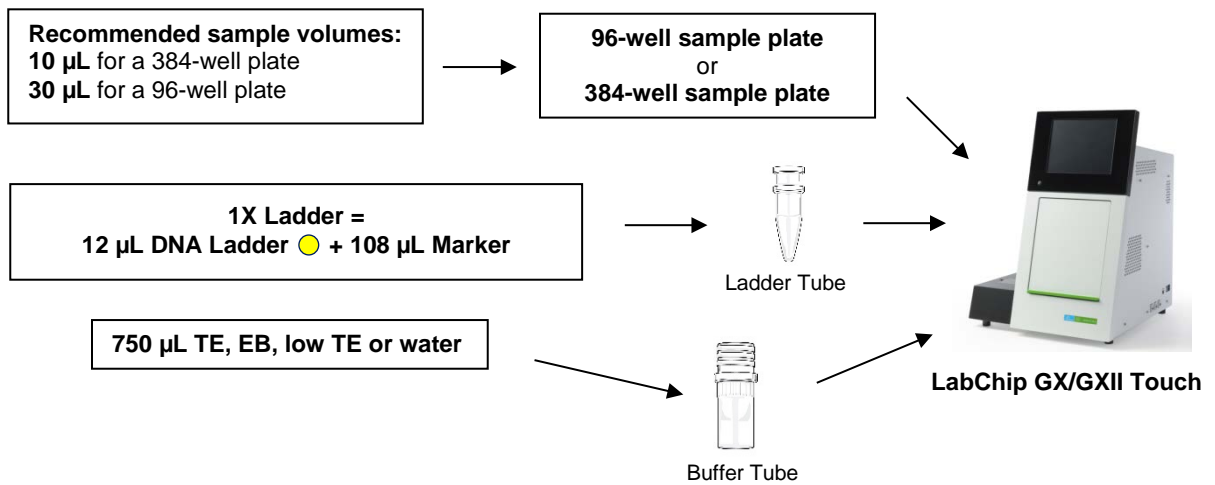
## DNA Sample, Ladder, and Buffer Preparation

**Note:** Samples must be diluted with Marker solution at 1:10 ratio.

### Sample Preparation



### Sample Workflow



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### Chip Cleaning and Storage

- 1 Remove chip from the instrument and place in the chip container.
- 2 Clean the gel from the electrodes with a lint-free swab.
- 3 Remove reagents from each chip well using a vacuum aspirator.
- 4 Rinse and thoroughly aspirate each active well (1, 3, 7, 8, and 10) twice with molecular biology grade water.
- 5 Add **100 µL** of Storage Buffer O to active wells.
- 6 Place the chip back on the LabChip GX Touch and tap the **Wash** button. Ensure a Buffer Tube with **750 µL** buffer or molecular biology grade water is in the buffer slot.
- 7 Remove the chip from the LabChip GX Touch and place in container.
- 8 Make sure to cover all wells with Parafilm® and store at 4°C.



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### Assay Specifications

**Note:** All specifications pertaining to DNA fragments were determined using ladder as sample in TE buffer. All specifications pertaining to DNA smears were determined using Covaris sheared control genomic DNA (human male) in TE buffer.

<b>Sizing Range</b>	50 - 3000 bp
<b>Sizing Resolution</b> <sup>1</sup>	± 10% from 200 - 1000 bp ± 15% from 50 - 200 bp, 1000 - 2000 bp ± 20% from 2000 - 3000 bp
<b>Sizing Accuracy</b>	± 10%
<b>Sizing Precision</b>	5% CV
<b>Starting Sample Linear Concentration Range</b>	50 - 5000 pg/μL <b>for smears</b> 5 - 500 pg/μL <b>per fragment</b> from 50 to 2000 bp 20 - 500 pg/μL <b>per fragment</b> from 2000 to 3000 bp
<b>Linear Concentration Range</b> (on plate after dilution with marker at 1:10 ratio)	5 - 500 pg/μL <b>for smears</b> 0.5 - 50 pg/μL <b>per fragment</b> from 50 to 2000 bp 2 - 50 pg/μL <b>per fragment</b> from 2000 to 3000 bp
<b>Sensitivity</b>	25 pg/μL <b>for smears</b> 2 pg/μL <b>per fragment</b>
<b>Maximum Starting DNA Concentration</b>	5000 pg/μL <b>total</b> 500 pg/μL <b>per fragment</b>
<b>Quantitation Accuracy</b>	± 30% for smear samples and fragment peaks > 2 pg/μL (concentration on plate after 1:10 dilution)
<b>Quantitation Precision</b>	20% CV
<b>Carry-Over</b>	< 0.5%
<b>Maximum Salt Concentration</b> <sup>2</sup>	10 mM Tris, 1 mM EDTA
<b>Analysis Time</b>	68 seconds per sample (~2.5 hours for 96 samples)
<b>Number of Samples per Chip Prep</b>	48 samples (24 chip) 192 samples (HT chip)
<b>Chip Lifetime</b> <sup>3</sup>	500 samples per chip (24 chip) 1000 samples per chip (HT chip)
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<sup>1</sup> Resolution is defined as half height or better separation of two peaks. Actual separation performance can depend on the sample and application. Peaks that are resolved less than half height can still be accurately identified by the system software.

<sup>2</sup> Higher salt concentrations and different ions may alter performance and reduce assay sensitivity.

<sup>3</sup> Expected chip lifetime is based on use under normal laboratory conditions and adherence to PerkinElmer chip preparation protocols, recommended sample composition, instrument maintenance procedures, and recommended chip and reagent storage. Individual results may vary.

For the complete DNA NGS 3K Assay User Guide, go to:

<http://www.perkinelmer.com/lab-solutions/resources/docs/CLS145099.pdf>

