

KAPA Library Preparation Kits Illumina series

Product Description

The KAPA Library Preparation Kit provides all of the enzymes and reaction buffers required for constructing libraries from fragmented dsDNA via the following steps:

- 1. End repair:** Produce blunt-ended, 5'-phosphorylated fragments.
- 2. A-tailing:** Add dAMP to the 3'-ends of the dsDNA library fragments.
- 3. Adaptor ligation:** Ligate dsDNA adaptors with 3'-dTMP overhangs to library fragments.
- 4. Library amplification:** PCR amplification of library fragments carrying appropriate adaptor sequences on both ends.

Reaction buffers are supplied in convenient, concentrated "master mix" formats comprising all of the required reaction components except oligonucleotide adaptors or PCR primers. Similarly, a single enzyme mixture is provided for each step of the library construction process, reducing the number of pipetting steps.

High fidelity PCR is used to selectively enrich library fragments carrying appropriate adaptor sequences and to amplify the amount of DNA prior to sequencing. During PCR enrichment of libraries, it is critical that amplification bias is kept to a minimum to ensure uniform sequence coverage. This enables efficient sequencing where the highest overall coverage can be achieved from the least amount of total sequence.

KAPA HiFi DNA Polymerase is designed for low bias, high fidelity PCR representing the method of choice for the amplification of next-generation sequencing libraries. The intrinsic high processivity of the enzyme results in significant improvements in yield, sensitivity, speed, target length and the ability to amplify difficult templates. These enhancements result in lower amplification bias which provides more uniform sequence coverage. The KAPA Library Preparation Kit includes KAPA HiFi HotStart ReadyMix (2X), a ready-to-use cocktail comprising all components for PCR, except primers and template.

Applications

This kit is primarily intended for the construction of the following types of Illumina libraries, but may be used for other applications requiring efficient end-repair, A-tailing, ligation, and/or library amplification steps:

- Genomic DNA libraries.
- Paired-end DNA libraries.
- Paired-end multiplexed (indexed/barcoded) DNA libraries.

To assist in adapting this kit to existing protocols and workflows, a complete and detailed description of each kit component is provided in Appendix A at the end of this document.

Kit codes and components

KK8200 10 reactions

- KAPA Library Preparation Kit - Illumina
- End Repair Enzyme Mix (50 µL)
 - 10X End Repair Buffer with dNTPs (100 µL)
 - A-Tailing Enzyme (30 µL)
 - 10X A-Tailing Buffer (50 µL)
 - DNA Ligase (50 µL)
 - 5X Ligation Buffer (100 µL)
 - 2X KAPA HiFi HotStart ReadyMix (250 µL)

KK8201 50 reactions

- KAPA Library Preparation Kit - Illumina
- End Repair Enzyme Mix (250 µL)
 - 10X End Repair Buffer with dNTPs (500 µL)
 - A-Tailing Enzyme (150 µL)
 - 10X A-Tailing Buffer (250 µL)
 - DNA Ligase (250 µL)
 - 5X Ligation Buffer (500 µL)
 - 2X KAPA HiFi HotStart ReadyMix (1250 µL)

Storage and handling

Store all components at -20 °C. Please refer to Section 4 for full details.

Quick Notes

- Reaction components should be **mixed fresh** and used on the same day.
- Reaction cleanup between successive enzymatic reactions may be accomplished via your method of choice. We recommend Agencourt Ampure XP Beads or Qiagen MinElute Reaction Cleanup Kits.
- The optimal cycling number for library amplification is determined by the volume and concentration of adaptor-ligated library DNA added to each enrichment PCR reaction. Typically this is in the range of 10 -18 cycles, but may require optimization.
- When using primers that differ in sequence from those listed in Table 1, we recommend performing gradient PCR to optimize the annealing temperature.



1. End Repair

Materials required but not supplied in this kit:

- Reaction tubes. Reactions may be assembled and processed in PCR plates, PCR tubes, or microcentrifuge tubes.
- Pipette tips. We strongly recommend the use of high-quality filter-plugged tips to prevent contamination of reagents and library samples.
- Reaction cleanup. We recommend Agencourt AMPure XP Beads (cat. # A63881) or Qiagen MinElute Reaction Cleanup Kits (cat. # 28204) for this purpose. AMPure XP Beads require an elution buffer (10 mM TRIS-Acetate, pH 8.0, reagent grade water).

1.1 Assemble the End Repair reaction:

Water to 100 μ L	x μ L
10X End Repair Buffer	10 μ L
End Repair Enzyme Mix	5 μ L
1 - 5 μ g sheared dsDNA	1 - 85 μ L
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Total	100 μ L

- 1.2 Incubate for 30 min @ 20 °C
- 1.3 Proceed immediately to cleanup.

End Repair Cleanup

We recommend either Agencourt AMPure XP Beads, **or** Qiagen MinElute Reaction Cleanup Kits. Below are suggested protocols for the recommended methods:

AMPure XP Beads

- 1.4 Ensure that the AMPure XP Beads are equilibrated to room temperature, and that they are thoroughly resuspended.
- 1.5 Add AMPure Beads to the End Repair reaction:

End Repair reaction	100 μ L
AMPure XP Beads	160 μL
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Total	260 μ L

- 1.6 Mix thoroughly on a vortex mixer or by pipetting up and down at least ten times.
- 1.7 Incubate at room temperature for 15 minutes to allow DNA to bind to the beads.
- 1.8 Capture the beads by placing the tube/PCR plate on an appropriate magnetic stand at room temperature for 15 minutes or until the liquid is completely clear.
- 1.9 Carefully remove and discard 255 μ L of the liquid. Take care not to disturb or discard any of the beads. Some liquid may remain visible in the tube/well.
- 1.10 Keeping the tube/plate on the magnetic stand and without disturbing the beads, wash the beads in 200 μ L of 80% EtOH for at least 30 seconds.
- 1.11 Carefully remove and discard the ethanol without disturbing the beads, and repeat the process for a total of 2 washes in 80% EtOH.
- 1.12 Remove the tube/plate from the magnetic stand, and allow the beads to dry at room temperature for 15 minutes.
- 1.13 Resuspend the beads thoroughly in 32.5 μ L elution buffer, and incubate at room temperature for 2 minutes to release the DNA from the beads.
- 1.14 Capture the beads by placing the tube/PCR plate on an appropriate magnetic stand at room temperature for 15 minutes or until the liquid is completely clear.
- 1.15 Recover the DNA in 30 μ L of supernatant and transfer to the tube/well in which you intend to perform the A-tailing reaction.

1. End Repair (cont.)

OR

Qiagen MinElute Reaction Cleanup Kit

The procedure for reaction cleanup using Qiagen MinElute columns described below is abbreviated and is intended for users who are already familiar with the method. Please consult the documentation provided by the supplier for full details.

- 1.4 If the End Repair reaction was performed in a PCR tube/plate, transfer the End Repair reaction to a microcentrifuge tube before proceeding.
- 1.5 Follow the MinElute protocol:

End Repair reaction	100 μ L
Add Buffer ERC	300 μL
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Total	400 μ L

- 1.6 Apply the mixture to a column and centrifuge or apply vacuum as appropriate. Discard the flow-through.
- 1.7 Wash with 750 μ L Buffer PE. Discard the flow-through.
- 1.8 Centrifuge for 2 minute at $\geq 10,000 \times g$ to remove all traces of ethanol.
- 1.9 To elute, transfer the column to a clean, sterile microcentrifuge tube and add 31 μ L buffer EB. Incubate for 1 minute at room temperature, and centrifuge to recover $\sim 30 \mu$ L.

****Safe Stopping Point****

If you are not proceeding to A-Tailing immediately, the protocol can be safely stopped here. Store at $-20 \text{ }^{\circ}\text{C}$ for up to seven days.



2. A-Tailing

2.1 Assemble the A-Tailing reaction:

Water	12 μ L
10X A-Tailing Buffer	5 μ L
A-Tailing Enzyme	3 μ L
End repaired DNA	30 μ L
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Total	50 μ L

2.2 Incubate for 30 min @ 30 °C

2.3 Proceed immediately to cleanup.

A-Tailing Cleanup

We recommend either Agencourt AMPure XP Beads, **or** Qiagen MinElute Reaction Cleanup Kits. Below are suggested protocols for the recommended methods:

AMPure XP Beads

2.4 Ensure that the AMPure XP Beads are equilibrated to room temperature, and that they are thoroughly resuspended.

2.5 Add AMPure XP Beads to the End Repair reaction:

A-Tailing reaction	50 μ L
Add AMPure XP Beads	90 μL
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Total	140 μ L

2.6 Mix thoroughly on a vortex mixer or by pipetting up and down at least ten times.

2.7 Incubate at room temperature for 15 minutes to allow DNA to bind to the beads.

2.8 Capture the beads by placing the tube/PCR plate on an appropriate magnetic stand at room temperature for 15 minutes or until the liquid is completely clear.

2.9 Carefully remove and discard 135 μ L of the liquid. Take care not to disturb or discard any of the beads. Some liquid may remain visible in the tube/well.

2.10 Keeping the tube/plate on the magnetic stand and without disturbing the beads, wash the beads in 200 μ L of 80% EtOH for at least 30 seconds.

2.11 Carefully remove and discard the ethanol without disturbing the beads, and repeat the process for a total of 2 washes in 80% EtOH.

2.12 Remove the tube/plate from the magnetic stand, and allow the beads to dry at room temperature for 15 minutes.

2.13 Resuspend the beads thoroughly in 32.5 μ L elution buffer, and incubate at room temperature for 2 minutes to release the DNA from the beads.

2.14 Capture the beads by placing the tube/PCR plate on an appropriate magnetic stand at room temperature for 15 minutes or until the liquid is completely clear.

2.15 Recover the DNA in 30 μ L of supernatant and transfer to the tube/well in which you intend to perform the adaptor ligation reaction.



2. A-Tailing (cont.)

OR

Qiagen MinElute Reaction Cleanup Kit

The procedure for reaction cleanup using Qiagen MinElute columns described below is abbreviated and is intended for users who are already familiar with the method. Please consult the documentation provided by the supplier for full details.

- 2.4 If the end repair reaction was performed in a PCR tube/plate, transfer the End Repair reaction to a microcentrifuge tube before proceeding.
- 2.5 Follow the MinElute protocol:

A-Tailing Reaction	50 μ L
Add Buffer ERC	300 μL
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Total	350 μ L

- 2.6 Apply the mixture to a column and centrifuge or apply vacuum as appropriate. Discard the flow-through.
- 2.7 Wash with 750 μ L Buffer PE. Discard the flow-through.
- 2.8 Centrifuge for 2 minute at $\geq 10,000 \times g$ to remove all traces of ethanol.
- 2.9 To elute, transfer the column to a clean, sterile microcentrifuge tube and add 31 μ L buffer EB. Incubate for 1 minute at room temperature, and centrifuge to recover $\sim 30 \mu$ L.

****Safe Stopping Point****

If you are not proceeding to Adaptor Ligation immediately, the protocol can be safely stopped here. Store at -20°C for up to seven days.



3. Adaptor Ligation

3.1 Assemble the Adaptor Ligation reaction:

5X Ligation Buffer	10 μ L
DNA Ligase	5 μ L
DNA Adaptor (30 μ M)*	5 μ L
A-Tailed DNA	30 μ L
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Total	50 μ L

*Not supplied

3.2 Incubate for 15 min @ 20 °C

3.3 Proceed immediately to cleanup.

Adaptor Ligation Cleanup

Note:

- If using AMPure XP Beads for DNA recovery and purification, we recommend that you follow the protocol outlined below to perform a total of **TWO** successive cleanup procedures after adaptor ligation. If you are using the MinElute Reaction Cleanup Kit, then a **single** cleanup procedure is recommended.

AMPure XP Beads

First AMPure XP Bead Cleanup

3.4 Ensure that the AMPure XP Beads are equilibrated to room temperature, and that they are thoroughly resuspended.

3.5 Add AMPure Beads to the End Repair reaction:

Adaptor Ligation reaction	50 μ L
Add AMPure XP Beads	50 μL
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Total	100 μ L

3.6 Mix thoroughly on a vortex mixer or by pipetting up and down at least ten times.

3.7 Incubate at room temperature for 15 minutes to allow DNA to bind to the beads.

3.8 Capture the beads by placing the tube/PCR plate on an appropriate magnetic stand at room temperature for 15 minutes or until the liquid is completely clear.

3.9 Carefully remove and discard 95 μ L of the liquid. Take care not to disturb or discard any of the beads. Some liquid may remain visible in the tube/well.

3.10 Keeping the tube/plate on the magnetic stand and without disturbing the beads, wash the beads in 200 μ L of 80% EtOH for at least 30 seconds.

3.11 Carefully remove and discard the ethanol without disturbing the beads, and repeat the process for a total of 2 washes in 80% EtOH.

3.12 Remove the tube/plate from the magnetic stand, and allow the beads to dry at room temperature for 15 minutes.

3.13 Resuspend the beads thoroughly in 52.5 μ L elution buffer, and incubate at room temperature for 2 minutes to release the DNA from the beads.

3.14 Capture the beads by placing the tube/PCR plate on an appropriate magnetic stand at room temperature for 15 minutes or until the liquid is completely clear.

3.15 Recover the DNA in 50 μ L of supernatant and transfer to the tube/well in which you intend to perform the second cleanup procedure (see below).



3. Adaptor Ligation (cont.)

Second AMPure XP Bead Cleanup

3.16 Ensure that the AMPure XP Beads are equilibrated to room temperature, and that they are thoroughly resuspended.

3.17 Add AMPure Beads to the End Repair reaction:

Library DNA from first cleanup	50 μ L
Add AMPure XP Beads	50 μL
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Total	100 μ L

3.18 Mix thoroughly on a vortex mixer or by pipetting up and down at least ten times.

3.19 Incubate at room temperature for 15 minutes to allow DNA to bind to the beads.

3.20 Capture the beads by placing the tube/PCR plate on an appropriate magnetic stand at room temperature for 15 minutes or until the liquid is completely clear.

3.21 Carefully remove and discard 95 μ L of the liquid. Take care not to disturb or discard any of the beads. Some liquid may remain visible in the tube/well.

3.22 Keeping the tube/plate on the magnetic stand and without disturbing the beads, wash the beads in 200 μ L of 80% EtOH for at least 30 seconds.

3.23 Carefully remove and discard the ethanol without disturbing the beads, and repeat the process for a total of 2 washes in 80% EtOH.

3.24 Remove the tube/plate from the magnetic stand, and allow the beads to dry at room temperature for 15 minutes.

3.25 Resuspend the beads thoroughly in 32.5 μ L elution buffer, and incubate at room temperature for 2 minutes to release the DNA from the beads.

3.26 Capture the beads by placing the tube/PCR plate on an appropriate magnetic stand at room temperature for 15 minutes or until the liquid is completely clear.

3.27 Recover the DNA in 30 μ L of supernatant and transfer to the tube/well in which you intend to store the library DNA until you carry out size selection.

OR

Qiagen MinElute Reaction Cleanup Kit

The procedure for reaction cleanup using Qiagen MinElute columns described below is abbreviated and is intended for users who are already familiar with the method. Please consult the documentation provided by the supplier for full details.

3.4 If the end repair reaction was performed in a PCR tube/plate, transfer the End Repair reaction to a microcentrifuge tube before proceeding.

3.5 Follow the MinElute protocol:

Adaptor Ligation reaction	50 μ L
Add Buffer ERC	300 μL
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Total	350 μ L

3.6 Apply the mixture to a column and centrifuge or apply vacuum as appropriate. Discard the flow-through.

3.7 Wash with 750 μ L Buffer PE. Discard the flow-through.

3.8 Centrifuge for 2 minute at $\geq 10,000 \times g$ to remove all traces of ethanol.

3.9 To elute, transfer the column to a clean, sterile microcentrifuge tube and add 31 μ L buffer EB. Incubate for 1 minute at room temperature, and centrifuge to recover $\sim 30 \mu$ L.

****Safe Stopping Point****

If you are not proceeding to Size Selection immediately, the protocol can be safely stopped here. Store at $-20 \text{ }^\circ\text{C}$ for up to seven days.



4. Size Selection / 5. Library Amplification

4. Size Selection

It is important to remove unligated adaptor molecules prior to library amplification to prevent the formation of “adaptor dimers” and other short adaptor-derived molecules, which may cause problems downstream during cluster amplification and sequencing. For many sequencing libraries/protocols, it is also helpful to select a relatively narrow and precisely defined size range of library fragments. Depending on your needs and options, you may choose to perform this size selection via a variety of common methods including:

- “SPRI-bead” size selection.
- “Double-SPRI-bead” size selection.
- Manual agarose gel electrophoresis, excision, and purification.
- Automated DNA size selection and collection (e.g. Sage Science Pippin Prep™).

Due to the wide variety of viable alternatives for this procedure we do not provide any specific protocols for size selection.

5. Library Enrichment/Amplification

5.1 Preparation

- Completely thaw, briefly vortex and centrifuge the KAPA HiFi HotStart Ready Mix (2X) and PCR primers.
- Completely thaw, briefly vortex and centrifuge the adaptor-ligated, size-separated purified library DNA.
- Pre-program the thermocycler using the appropriate cycling protocol (see Table 1 for recommendations).

5.2 Reaction setup

Refer to **Table 1** (page 9) for the suggested reaction setup for specific library preparation protocols. Change tips after each pipetting step. Seal each reaction, mix gently and centrifuge briefly.

5.3 Cycling protocol

Refer to **Table 1** (page 9) for the thermal cycling protocol for specific library types.

5.4 Clean up PCR

After PCR, clean up each reaction using either Agencourt AMPure XP beads (Beckman Coulter Genomics part # A63881) or Qiagen MinElute PCR purification kit (Qiagen, part # 28004), according to the recommended procedures supplied with the product.

5.5 Validate library

To verify the size of the PCR enriched fragments, check the size distribution by performing gel electrophoresis or Bioanalyzer. Accurate quantification of amplifiable library molecules is critical for the efficient use of the Illumina sequencing platforms. Overestimation of library concentration results in lower cluster density after bridge PCR. Underestimation of library concentration results in too many clusters on the flow cell, which can lead to poor cluster resolution. Both scenarios result in suboptimal sequencing capacity. Accurate library quantification is equally important when pooling indexed libraries for multiplexed sequencing to ensure equal representation of each library.

Use the appropriate KAPA Library Quantification Kit (KK4824, KK4835, KK4844, or KK4854) to accurately quantify the number of PCR-competent molecules.

5. Library Amplification (cont.)

Table 1. Recommended reaction setup and cycling parameters for KAPA HiFi HotStart ReadyMix (2X) reactions

Library	Component	Final Conc.	Volume/50 µL rxn	Cycling Protocol	
Genomic DNA	PCR grade water		As needed	Denaturation	45 sec at 98 °C
	2X KAPA HiFi HS RM	1X	25 µL	Cycling*	15 sec at 98 °C
ChIP	PCR Primer 1.1	500 nM	1 µL		30 sec at 65 °C
	PCR Primer 2.1	500 nM	1 µL		30 sec at 72 °C
	Library DNA		As needed	Final Extension	1 min at 72 °C
PE	PCR grade water		As needed	Denaturation	45 sec at 98 °C
	2X KAPA HiFi HS RM	1X	25 µL	Cycling*	15 sec at 98 °C
	PE PCR Primer 1.0	500 nM	1 µL		30 sec at 65 °C
	PE PCR Primer 2.0	500 nM	1 µL		30 sec at 72 °C
	Library DNA		As needed	Final Extension	1 min at 72 °C
PE Multiplex	PCR grade water		As needed	Denaturation	45 sec at 98 °C
	2X KAPA HiFi HS RM	1X	25 µL	Cycling*	15 sec at 98 °C
	PE PCR Primer InPE 1.0	500 nM	1 µL		30 sec at 65 °C
	PE PCR Primer InPE 2.0	10 nM	1 µL		30 sec at 72 °C
	PCR Primer Index 1 - 12	500 nM	1 µL	Final Extension	1 min at 72 °C
TruSeq DNA	Library DNA		As needed	Denaturation	45 sec at 98 °C
	2X KAPA HiFi HS RM	1X	25 µL	Cycling*	15 sec at 98 °C
	PCR Primer Cocktail (PPC)	500 nM each	5 µL		30 sec at 60 °C
	Library DNA		20 µL		30 sec at 72 °C
				Final Extension	1 min at 72 °C

* The optimal cycling number is determined by the volume and concentration of adaptor-ligated, size separated, purified library DNA added to each enrichment PCR reaction. Typically this is in the 10-18 cycle range but may require optimization.



Appendix A: Composition of Materials

10X KAPA End Repair Buffer - contains dNTPs and ATP

500 mM Tris-HCl
100 mM MgCl₂
100 mM DTT
10 mM ATP
4 mM dATP
4 mM dCTP
4 mM dGTP
4 mM dTTP
pH 7.5 @ 25 °C

KAPA End Repair Enzyme Mix

3,000 U/mL T4 DNA Polymerase
10,000 U/mL T4 Polynucleotide Kinase
Supplied in: 100 mM KCl, 10 mM Tris-HCl, 0.1 mM EDTA, 1 mM DTT, 0.1% Triton X-100, 50% Glycerol, pH 7.4 @ 25 °C

10x KAPA A-Tailing Buffer - contains dATP

100 mM Tris-HCl
100 mM MgCl₂
500 mM NaCl
10 mM DTT
2 mM dATP
pH 7.9 @ 25 °C

KAPA A-Tailing Enzyme

5,000 U/mL (0.5 mg/mL) Klenow Fragment (3' → 5' exo-)
Supplied in: 20 mM Tris-HCl, 1 mM DTT, 0.1 mM EDTA, 50% Glycerol, pH 7.5 @ 25 °C

5X KAPA Ligation Buffer

330 mM Tris-HCl
50 mM MgCl₂
5 mM DTT
5 mM ATP
30% PEG 6000
pH 7.6 @ 25 °C

KAPA DNA Ligase

600,000 U/mL (2 mg/mL) T4 DNA Ligase
Supplied in: 10 mM Tris-HCl, 50 mM NaCl, 1 mM DTT, 0.1 mM EDTA, 50% Glycerol, pH 7.5 @ 25 °C

KAPA HiFi HotStart ReadyMix

KAPA HiFi HotStart DNA Polymerase is an antibody-based hot start formulation of KAPA HiFi DNA Polymerase, a novel B-family DNA polymerase engineered for increased processivity and high fidelity. KAPA HiFi HotStart DNA Polymerase has 5' → 3' polymerase and 3' → 5' exonuclease (proofreading) activities, but no 5' → 3' exonuclease activity. The strong 3' → 5' exonuclease activity results in superior accuracy during DNA amplification. The error rate of KAPA HiFi HotStart DNA Polymerase is calculated at 1 error in 3.54 x 10⁶ bases covered (2.82 x 10⁻⁷). DNA fragments generated with KAPA HiFi HotStart ReadyMix may be used for routine downstream analyses or applications, including restriction enzyme digestion and sequencing. PCR products generated with KAPA HiFi HotStart ReadyMix are blunt-ended, but may be 3'-dA-tailed for cloning into TA cloning vectors.

6. Storage, handling and specifications

6.1 Shipping, storage and handling

KAPA Library Preparation Kits are shipped on dry ice or ice packs, depending on the country of destination. Upon receipt, store the entire kit at -20 °C in a constant-temperature freezer. When stored under these conditions and handled correctly, all kit components will retain full activity until the expiry date indicated on the kit.

Please note that certain components in KAPA Library Preparation Kits (e.g. End Repair Mix, DNA Ligase, buffers containing dNTPs and/or ATP, etc.) are particularly sensitive to temperature and freeze-thaw cycles, and should be handled with special care.

The KAPA HiFi HotStart ReadyMix (2X) contains isostabilizers and may not freeze solidly, even when stored at -20 °C. Nevertheless, always ensure that the KAPA HiFi HotStart ReadyMix is fully thawed and has been vortexed before use.

KAPA HiFi HotStart ReadyMix (2X) may be stored at 4 °C for regular, short-term use (up to 1 month). Provided that it has been handled carefully and not contaminated, the ReadyMix is not expected to be compromised if left (unintentionally) at room temperature for short periods of time (up to 3 days). Long-term storage at room temperature or 4 °C is not recommended. Please note that reagents stored above -20 °C are more prone to degradation when contaminated by the user; storage at such temperatures is therefore at the user's own risk.

6.2 Quality control

All kit components are subjected to stringent quality control tests, are free of contaminating exo- and endonuclease activities and meet strict requirements with respect to DNA contamination. Detailed quality control information for individual kit components is available upon request, please contact support@kapabiosystems.com.

6.3 Product use limitations and licenses

KAPA Library Preparation Kits are developed, designed and sold exclusively for research purposes and *in vitro* use. Neither the product, nor any individual component, has been tested for use in diagnostics or for drug development, nor is it suitable for administration to humans or animals. Please refer to the MSDS, which is available on request.

Certain applications of this product are covered by patents issued to parties other than Kapa Biosystems and applicable in certain countries. Purchase of this product does not include a license to perform any such applications. Users of this product may therefore be required to obtain a patent license depending upon the particular application and country in which the product is used.

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For technical support please contact support@kapabiosystems.com