# Hot Start ZipTaq Cat #: 304

**Amount:** 125 ul
**Shipping conditions:** Ambient temperature
**Storage conditions:** -20°C
**Thermostability:** Retains at least 85% activity after 1 hour at 95°C
**Expiration:** On tube label

**PRODUCT DESCRIPTION:** Hot Start ZipTaq DNA Polymerase is made with aptamer-based technology, enabling room temperature reaction set-up. The aptamer binds to the polymerase at sub-cycling temperatures, inactivating the enzyme and preventing spurious amplification.

ZipTaq is a Taq polymerase with multiple mutations that make it the fastest enzyme in our collection. With the addition of one of our PECs, it can tolerate up to 40% blood in the reaction.

**TYPICAL PCR PROTOCOL for a 25 µl reaction:**

| Reagent | Volume | Final Concentration |
|---|---|---|
| 10x ZipTaq Buffer | 2.5 µl | 1x |
| dNTP mix (10 mM each) | 0.5 µl | 200 µM each |
| Left Primer | variable | 200 nM |
| Right Primer | variable | 200 nM |
| DNA template† | variable | 0.1-100 ng |
| Hot Start ZipTaq | 0.05 – 0.25 µl ** | |
| De-ionized distilled H2O | Adjust final volume to 25 µl | |

† DNA amount depends mostly on genome size and target gene copy number. For templates containing PCR inhibitors, we recommend using one of our PCR Enhancer Cocktails (PEC-1, PEC-1GC, PEC-2, or PEC-2-GC) which are specially formulated for use with whole blood, serum or plasma or 1.3M Betaine, a general PCR enhancer.
** To determine specific optimal enzyme concentration, we strongly recommend an enzyme titration test for each target. A good starting amount of the enzyme per 25 µl reaction is 0.05 µl for purified DNA templates and 0.25 µl for crude samples containing 5-10% whole blood, plasma or serum. Targets larger than 1 kb may require more enzyme or may benefit from the use of an LA (Long Accurate) version of the polymerase.

**3-STEP CYCLING CONDITIONS (For 25 ul reactions):**

1. Initial Denature: 95° for 1 minutes for 1 cycle *
2. Denaturing: 94° for 1-5 seconds †
3. Annealing: 50°-68° depending on the specific Tm primers for 1-5 seconds †
4. Extension: 68° for 1-5 seconds/kb target †
5. Repeat steps 2-4 for 25-40 cycles

**2-STEP CYCLING CONDITIONS (For 25 ul reactions):**

1. Initial Denature: 95° for 1 minutes for 1 cycle *
2. Denaturing: 94° for 1-5 seconds †
3. Annealing/Extension: 60°-65° depending on the specific Tm primers for 1-5 seconds/kb target †
4. Repeat steps 2 and 3 for 25-40 cycles

* A 2-5 minute initial denaturation is recommended for crude samples containing 5-10% whole blood, plasma or serum.
† Exact number of seconds will depend on the thermocycler and target. We recommend experimentation to determine precise cycling parameters.

**Please visit us on the web at www.klentaq.com for data, troubleshooting and related products.**