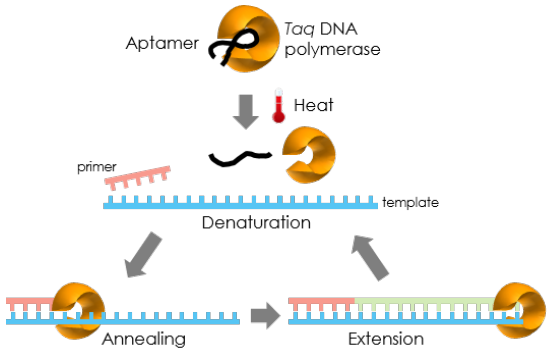
ExcelTaq™
Hot Start II DNA Polymerase

Principle of aptamer-based hot start PCR



The ExcelTaq™ Hot Start II DNA Polymerase is a mixture of an aptamer-based inhibitor and a recombinant thermo-stable *Taq* DNA polymerase designed for preventing or minimizing non-specific DNA amplification in PCR reaction. The inactivation of polymerase is achieved by a reversible bond of the aptamer to the polymerase at temperatures below 45˚C. The aptamer inhibitor releases polymerase during normal PCR cycling. The aptamer-based inhibition omitting the time-consuming initial activation step required by chemically modified or antibody-based hot start polymerases. With a high DNA synthesis rate and high thermo-stability, ExcelTaq™ Hot Start II DNA Polymerase allows reactions to be set up at room temperature and is suitable for common and specialized PCR applications.

Hot Start

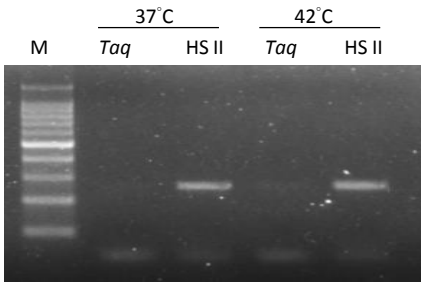


Figure 1. ExcelTaq™ ExcelTaq™ Hot Start II shows absolute amplicon when pre-incubation at 37˚C and 42˚C.
Reactions were subjected to a pre-incubation at 37˚C or 42˚C for 10 minutes before initial denaturation step. General *Taq* DNA polymerase generated primer dimers and failed to amplify target due to enzyme activated at 37˚C or 42˚C.

High specificity

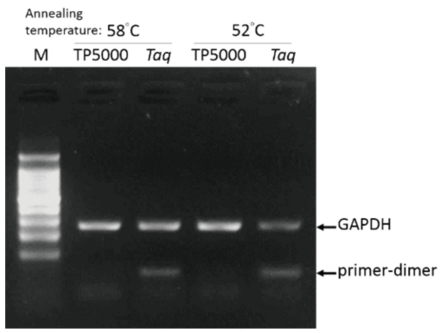


Figure 2. ExcelTaq™ Hot Start II DNA Polymerase shows high specificity on amplifying target DNA.
The optimal annealing temperature of GAPDH primer set is 58˚C. Improper annealing temperature set at 52˚C may force primer-dimer formation. ExcelTaq™ Hot Start II DNA Polymerase eliminated primer-dimer and increased amounts of desired product. *Taq* DNA polymerase reduced target amplification due to primer-dimer formation at improper annealing temperature of 52˚C.

High sensitivity

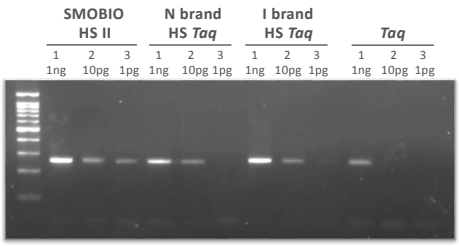


Figure 3. ExcelTaq™ Hot Start II DNA Polymerase shows high sensitivity to amplify from low amount of templates.
Each set of PCR reactions contained either 1 pg, 10 pg, or 1 ng of HeLa cell cDNA as templates. ExcelTaq™ Hot Start II DNA Polymerase successfully amplified targets from lower amount of templates, in comparison with hot-start DNA polymerases from other suppliers and general *Taq* DNA polymerase.

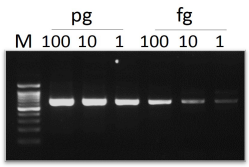


Figure 4. ExcelTaq™ Hot Start II DNA Polymerase amplifies from plasmid template amounts as low as 1 fg.

Order information

Cat. No.	Product Name	Contents
TP5000	Hot Start II DNA Polymerase	5 U/µl, 500U

E-mail: info@smobio.com | www.smobio.com