SmartHotTaq DNA Polymerase, 5 U/µl

Description: SmartHotTaq DNA Polymerase is a genetically modified recombinant Taq DNA polymerase. SmartHotTaq DNA Polymerase possesses a 5' - 3' polymerase activity and generates 3'A-overhangs. The PCR products obtained with SmartHotTaq DNA Polymerase are free of unspecific products and primer-dimers. Due to the modification, it shows a higher processivity and stability against inhibitors compared to other Taq Polymerases (like BIORONs SuperHotTaq Polymerase). Therefore, this enzyme is recommended especially for assays with high Multiplex grade or inhibitor residues. SmartHotTaq is blocked by antibody, which allows convenient reaction set-up at room temperature and prevents amplification of unspecific fragments. A variant without antibody is available.

Concentration: 5 units/µl

Storage: -18 °C to - 22 °C for long term, + 2 to + 8 °C for short term

REF	102020	102022	colour
SmartHotTaq DNA Polymerase	**200 units**	**1000 units**	**blue**
Incomplete NH_4* Reaction Buffer (10x)	**1.8 ml**	**2x 1.8 ml**	**red**
Complete NH_4 Reaction Buffer (10x)**	**1.8 ml**	**2x 1.8 ml**	**yellow**
Complete KCl * Reaction Buffer (10x)**	**1.8 ml**	**2x 1.8 ml**	**black**
$MgCl_2$, 100 mM	**1 ml**	**2x 1 ml**	**green**

* Incomplete NH_4 Reaction Buffer (10x): pH 8.8, 0.1% Tween 20, free of $MgCl_2$.

** Complete NH_4 Reaction Buffer (10x): pH 8.8, 0.1% Tween 20, 20 mM $MgCl_2$.

*** Complete KCl Reaction Buffer (10x): pH 8.8, 0.1% Tween 20, 15 mM $MgCl_2$.

Application: SmartHotTaq DNA Polymerase is suitable for all regular PCR applications, especially for Multiplex and Real-Time PCR with inhibitor residues or assays that need short time protocols. This polymerase effectively amplifies templates up to 5 kb length.

Unit definition: One unit of activity is defined as the amount of enzyme required to incorporate 10 nmoles of dNTP into acid-insoluble DNA fraction in 30 minutes at 72 °C.

- SmartTaq REF 103020/ 103022 is a variant of this product without antibody.
- Do not vortex the polymerase tube (blue) to avoid damaging the enzyme.

BIORON GmbH – In den Rauhweiden 20 - 67354 Römerberg (Germany)
Phone +49 6232 298 45 0 - Fax +49 6232 298 45 29
info@bioron.net www.bioron.net

Recommended Standard Protocol:

Component	20 µl Reaction	Final Concentration
10x Reaction Buffer	2 µl	1 x
SmartHotTaq DNA Polymerase	0.2 µl	1 U
Forward Primer	Variable	100 – 400 nM
Reverse Primer	Variable	100 – 400 nM
dNTP Mix (10 mM)	0.4 µl	200 µM each
Template DNA	Variable	0.01 – 10 ng per reaction
PCR Water	adjust to 20 µl final volume	--

Recommended Thermocycler Protocol

Step	Time	Temperature	Cycles
Initial Denaturation	3 minutes	92 – 95 °C	1 x
Denaturation	5 seconds	92 – 95 °C	25 – 35 x
Annealing	5 seconds	55 – 68 °C*	
Extension	30 seconds per 1 kb amplicon length	72 °C	

* Depends on primer, the optimal annealing temperature is usually 2 – 5°C below the primer melting temperature

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