

## One Step WGA Kit

Kit for the amplification of genomic DNA from low template amounts or single cells.

Research Use Only (RUO)

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<b>One Step WGA Kit</b>	Ref. No: 108725 (25 preps)
	Ref. No: 108750 (50 preps)
Valid from:	August 2019

## 1. Introduction

**BIORON'S One Step WGA Kit**, developed and produced at BIORON GmbH, is an improved version of the DOP (degenerated oligo PCR) with optimized primer sequences and BIORON's unique SD Polymerase. This enzyme combines the strand displacement capability with heat stability up to 92 °C. Due to these features it is possible to use this enzyme for both amplification steps without additional pipetting or hands on time. The Kit contains everything that is necessary for amplification of human genomic DNA from single cells or low copy templates. Each Kit contains a 2.5x MM (Master Mix without enzyme); 10 U/μl SD Polymerase; human genomic DNA as positive control and PCR grade water.

The amplification is based on a multiple displacement reaction in combination with specially designed degenerated primers optimized for human genomic DNA. The BIORON SD Polymerase is able to replace former strands during the synthesis of the new strand. In combination with the temperature stability up to 92 °C the two common reaction steps within a whole genome amplification assay does not need additional hand on time. This minimizes the risk of contamination and handling errors.

The Kit is designed for reproducible amplification of low copy number genomic DNA to yield 2-10 μg of product in about 2 hours.

## 2. Content of the Kit

Ref No	108725 25 preps	108750 50 preps	cap color	Storage
2.5x MM	250 μl	2x250 μl	white	-20 °C
10 U/μl SD Polymerase	25 μl	50 μl	blue	-20 °C
PCR grade H <sub>2</sub> O	1800 μl	1800 μl	transparent	-20 °C
human genomic DNA	70 μl	70 μl	red	-20 °C

Avoid shearing forces during thawing and handling of positive control (PC, human genomic DNA) and samples.

### Additional Material Required

- PCR Cycler
- low binding PCR tubes suitable for the used PCR Cycler
- seals or lids suitable for the PCR tubes
- disposable low binding pipette tips with aerosol barrier
- variable-volume single-channel pipettes
- safety laminar box
- safety equipment according to your local requirements

### 3. Applications for OneStep WGA Kit

- Single cell DNA analysis
- Next Generation Sequencing (NGS)
- SNP Genotyping
- qPCR- and PCR-based mutation detection
- STR and RFLP analysis
- Array technologies (comparative genomic hybridization)

### 4. Storage Conditions and Stability

The Kit has to be stored at -20 °C and is stable until the expiry date.

Thaw the 2.5x MM (Master Mix), positive control and water just before use. Keep them at 4 °C and the SD Polymerase at -20 °C until needed and transport in a cooling rack.

Please avoid additional freeze and thaw cycles of the 2.5x MM reaction buffer. If a small number of reactions is needed aliquoting of the 2.5x MM is sufficient.

Guarantee for full performance of the kit as specified in this manual is only valid if storage conditions are followed.

### 5. Quality Control

The performance of the **BIORON One Step WGA Kit** is monitored routinely on a lot-to-lot basis.

### 6. Protocol for reaction setup

#### **Important note before starting:**

The Kit is designed for amplification of already isolated human genomic DNA. There is no extraction system included.

#### **Sample requirements:**

- Genomic DNA from 1-100 cells (e.g. 10-1000 pg DNA from human cells)
- Sorted chromosomes
- Intact or fragmented single- or double-stranded DNA from animal, plant or bacterial sources
- Maximum sample volume 14 µl
- DNA from cell staining may negatively affect the Kit performance
- DNA from formalin fixed samples must be avoided to achieve optimum results

## Reaction setup:

2.5x MM	10 µl
10 U/µl SD Polymerase	1 µl
Template (genomic DNA or PC)	10 pg – 2000 pg
H <sub>2</sub> O	fill up to 25 µl
	25 µl reaction volume

The concentration of PC is 5 pg/µl genomic DNA. We recommend the use of 4 µl PC (20 pg hDNA) in the positive control reaction.

## Amplification program:

92 °C	2 min		
92 °C	1 min		
30 °C	1 min	ramp 0.3 °C/s	6x
68 °C	3 min		
92 °C	30 s		14x
62 °C	30 s		
68 °C	3 min		
68 °C	2 min		

**Use ramp rate of 0.3 °C/sec for the increase from 30 °C to 68 °C.**

The Products of the amplification can be used directly for PCR. We recommend a 1:10 fold dilution but can be different depending on your personal workflow. Some applications require purification or quantification. The amplified DNA can be purified with spin columns or filter plates. Please note that the sample includes also short DNA fragments which can be lost during purification steps.

## Warranty and Guarantee of Products

The manufacturer guarantees the performance of its **One Step WGA Kit** in the manner described in this handbook. It is up to the purchaser to determine the suitability of **One Step WGA Kit** for its particular use. In case a product fails to perform as warranted by any reason, BIORON's sole obligation and the customer's sole remedy is limited to replacement of product free of charge. BIORON excludes all other warranties. We reserve the right to change, alter, or modify our **One Step WGA Kit** to enhance its performance and design. The manufacturer's terms and conditions are available on request.

## Limitations of Product Use

The use the product is strictly limited to research purposes only. They are not to be applied for any diagnostic, including human, medical or drug purposes.

## Technical Hotline

If you have questions or suggestions for improvement of this kit, please email us.

Email: [info@bioron.net](mailto:info@bioron.net)

**BIORON GmbH – In den Rauheiden 20 - 67354 Römerberg (Germany)**

Phone +49 6232 298 45 0 - Fax +49 6232 298 45 29

[info@bioron.net](mailto:info@bioron.net) [www.bioron.net](http://www.bioron.net)