



One Enzyme – So many new opportunities with PCR2.0 and NGS

The Strand Displacement Polymerase – Optimized and Approved Taq-Enzyme

Since many years PCR methods and protocols are part of standard research, diagnostic assays and projects in academia and industry. The scope of applications is getting a standard on global level more and more. From Point-of-Care (PoC) diagnostics, agricultural and food analytics up to Preimplantation Genetic Determinations (PGD), Next-Generation Sequencing and cancer research. Latest by the pandemic of coronavirus disease 2019 and since years of announcement related to precision medicine, the modern Technology with PCR and Sequencing shows its real potential to the public.

Central key tool in this technology is the DNA Polymerase of *Thermus aquaticus* which makes things work. This enzyme amplifies the given and targeted DNA exponential in special defined environment and enables the technical detection with manual methods or full automated high throughput systems.

With the SD-Polymerase BIORON has a new and unique artificial Taq-Polymerase enzyme in the product portfolio. This tool offers additional Next-Generation Polymerase-Chain-Reactions and improved protocols for DNA sequencing. It is integrated as single product as well as universal part for assays and protocols in different BIORON Life Science product categories. Based on the functional and structural modifications, the SD-Polymerase shows specific and improved properties and advantages over classical Taq-Polymerases for amplification of targeted DNA sequence information.



PCR 2.0 - Methods

- Loop-mediated Isothermal Amplification (LAMP)
- Isothermal Amplification (e.g. PoC)
- PCR for difficult fragments - PCR for long fragments - qPCR with special probes
- Polymerase Chain Displacement-Reactions (PCDR - is possible with SD-Polymerase only)

NGS – Sample Preparation

- Single Cell Whole Genome Amplification Kit
- One Step Whole Genome Amplification Kit
- DNA Fragmentation Kit – a new technique in library generation
- Ligation and Library Generation Kit

Single Cell Whole Genome Amplification Kit: Especially designed to amplify the complete DNA information from as low as 2 cells in rare sample material. Already approved for Preimplantation Genetic Diagnosis (PGD) and different medical applications.

Whole Genome Amplification Kit: This kit allows simple and effective one-tube whole-genome amplification with minimal drop-out alleles in the resulting product.

DNA Fragmentation Kit: Well defined DNA fragments with a size of approximately 150 bp are essential and of importance in the NGS sample procedure. This kits protocol enables reproducible DNA products lengths in a simple process. With no need for separation of fragments or further processing.

Ligation & Library Generation Kit: With this new kit it is so smart to combine the Ligation step with Y-adapters as well as DNA index adapters and the target DNA together with the amplification to obtain the relevant amount of DNA.

Summary: BIORON offers a state-of-the science portfolio containing tools for molecular-biological research. The Strand Displacement (SD-) Polymerase is one of the cutting edge products for new applications to understand the genome structures faster and better. The SD-Polymerase will help to improve sample handling and decoding and to ensure the high quality of modern sequencing DNA results.

BIORON supports donation campaign: 1% of the order value of your purchase goes to the [Marburg Botanical Garden](#).

Key words: DNA-Sequencing, NGS, WGA, Whole Genome Amplification, Single Cell NGS, Fragmentation, Ligation, Library, DNA enrichment

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